

# CHAPTER 1 – GETTING STARTED

## *BEFORE YOU BEGIN CARVING*

I know you are excited to give your new purchase a test drive, but there are some things you need to do and learn first. Most is located in our Getting Started Section under the SUPPORT menu:

<http://support.carverwright.com/getting-started/>

### **INSPECT AND INVENTORY:**

The first step in getting started with the CarveWright CNC is to un-box the machine, inspect it for any shipping damage and inventory your order. If there are any issues, contact LHR Technologies, Inc. at 713-473-6572.

### **MACHINE SET-UP:**

Follow the instructions in the Quick Start Guide located in the box and on our website. **READ BEFORE YOU TURN ON YOUR MACHINE.**

### **REMEMBER SAFETY FIRST:**

Please follow all safety suggestions listed in the CarveWright Machine Manual.

### **CREATE A CUSTOMER ACCOUNT:**

Next, you will install your Designer software, create your own Customer Account and register your machine, software licenses and computers. Make sure to follow the steps in the Designer Software Quick Start Guide located in your box and on our website. These steps need to be accomplished before proceeding with this learning guide. **NOTE:** You created a Store Account, when you purchased your machine; not a Customer Account.

### **ADDITIONAL RESOURCES:**

Make sure you also read the CarveWright Hardware Manual and watch the instructional DVD. These contain the basic operating and troubleshooting information needed to successfully use the CarveWright CNC System.

The CarveWright Project Designer Manual is also very thorough in its explanation of the CarveWright software and should be used as a companion to this guide.

Other resources include tutorials, videos, Tips & Tricks, FAQs, maintenance schedules, repair documents, a Forum, Local User Groups and START U members.

## *HOW TO DESIGN YOUR PROJECT*

### **TRASH IN = TRASH OUT**

Start with quality patterns or, if you are importing an image (whole other animal), use a high resolution. Remember images on the internet are a low resolution, so that they will quickly load on the browser page. Some clean up of these patterns can be done with other add-on software.

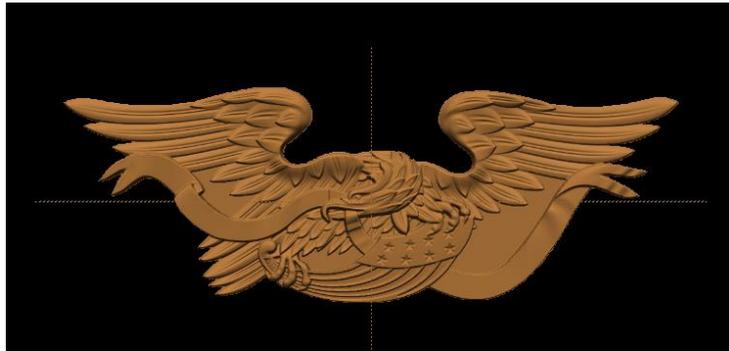
Use any True Type Font, but remember thin fonts may result in chip out. Lower the height and add draft to help prevent this.

There are four quality settings. The higher the setting, the less the sanding will be required. You may want to carve a test piece prior to carving in your more expensive materials.

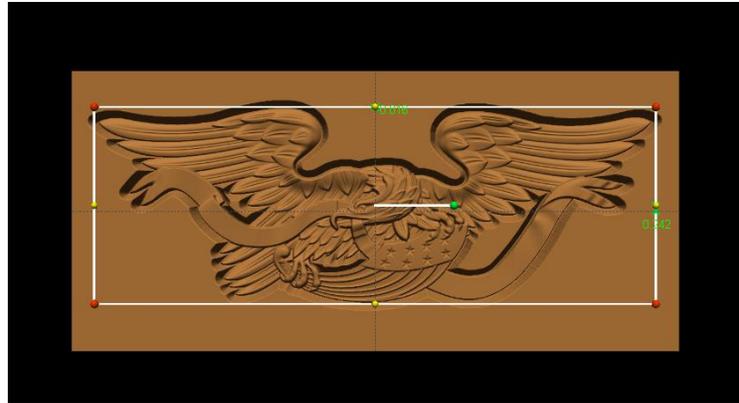
Use sharp bits. It should be sharp enough to scrape away part of your fingernail. Bit optimization could also help with your projects success.

### **DETERMINE PROJECT SIZE**

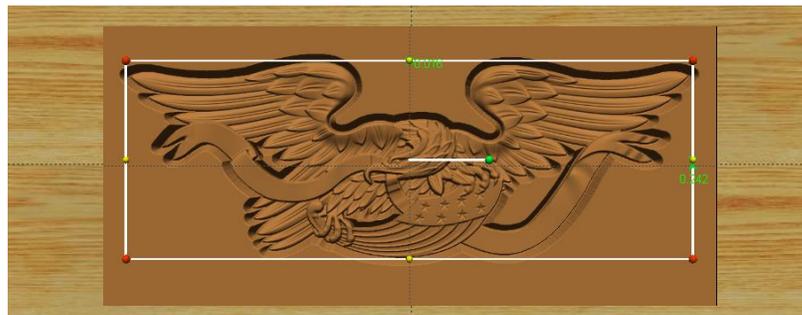
Your desired finished piece size will most often dictate what size virtual and actual boards you will need.



Finished Project size – Example: 24" x 8.436"



Virtual Board Size (always larger than project) – Example: 26" x 12" x .75"  
Reserve .5" as keep out zone at the top of your virtual board to avoid board tracking roller when doing cut-outs.



Actual Board (always larger than virtual) – Example: 33" x 13"  
Needs 3.5" on each end from start of carve to automatically stay under the rollers. This can be from the board or from a jig. Width is not as critical, just keep in mind, if your virtual is 12" and your actual is 12", but your machine measures it as 11.999" then it will ask if you want to shrink your project to fit the board. (Unless, of course, you don't care if it shrinks it down.)

## PROJECT DESIGNER BASICS

### PROJECT DESIGNER BASIC & PRO

The Designer software is available in the BASIC & PRO versions. Every registered machine allows for one BASIC license, which can be installed and registered on two computers. The PRO version, additional add-on software, patterns & project licenses can be added to these BASIC licenses. It is available for both MAC and



Windows Operating Systems. Check out further information such as computer requirements in the Software FAQs.

Designer is used as a virtual board, to which you add different elements, such as patterns, text, drawing tools, textures, surfaces and more to create a PROJECT for carving on the machine. Always save your projects (.mpc) files to your hard drive for future use or changes.

Upon upload to the memory card, those elements are changed into a language that the machine understands and is no longer readable by the Designer software.



Designer software is only forward compatible. Projects designed in BASIC can be opened in PRO, but those designed or saved in PRO cannot be opened in BASIC. Only one version can be open at a time, but both can be installed on your computer. Any new features will be programmed for the PRO version.

### STEP-BY-STEP TUTORIALS

These step by-step tutorials have been designed to give you the opportunity to learn by doing. They can be printed and sat beside you at your computer, while you follow each step to learn the different design features and create the project of each tutorial. Photos in these tutorials show what you should similarly be seeing on your own screen.

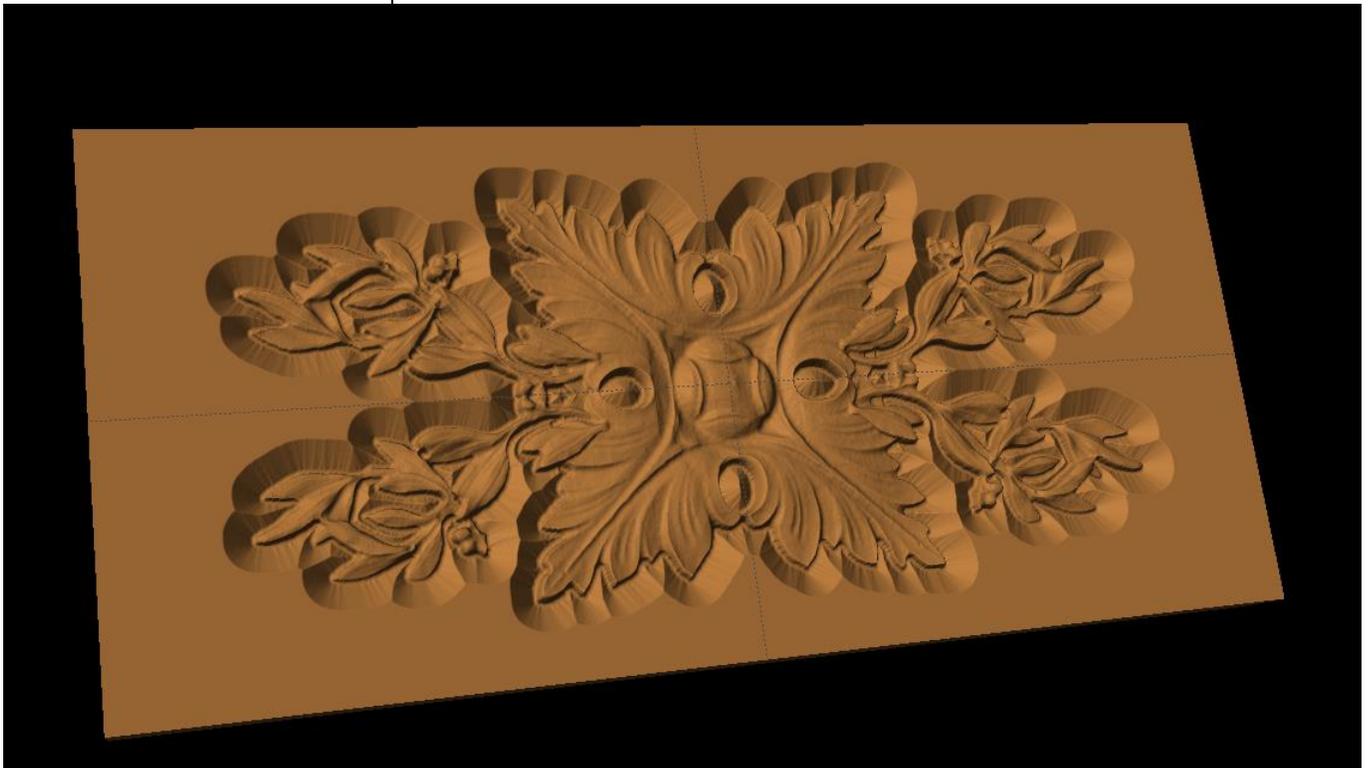
Projects include:

- Design Basic
- Basic Shell
- My First Carve

All of these tutorials can be completed using just the features of Designer BASIC.

**This project covers the following design concepts:**

- STARTING SOFTWARE
- MENUS, TOOLBARS OR MOUSE
- MANIPULATING THE WORKPIECE
- PATTERN PLACEMENT
- PATTERN MANIPULATION
- CENTERING
- MIRRORING
- TEXTURE
- MANAGING DATA
- UPLOADING TO MEMORY CARD



**INSTRUCTIONS:**

➤ **STARTING THE SOFTWARE**

The Welcome screen appears with project options.

Select "New Project"

Set your board piece dimensions.

Length: 12"

Width: 5.5"

Thickness: .750"

Click ok

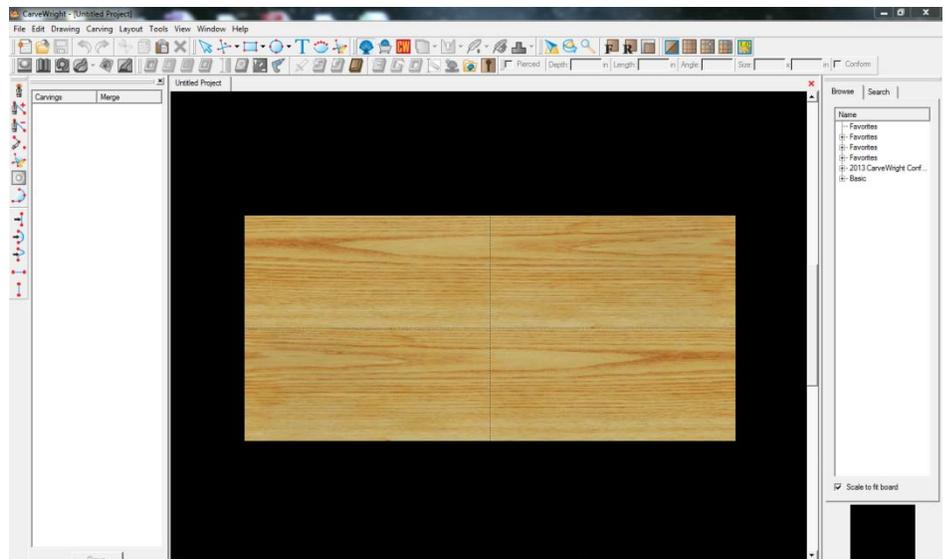
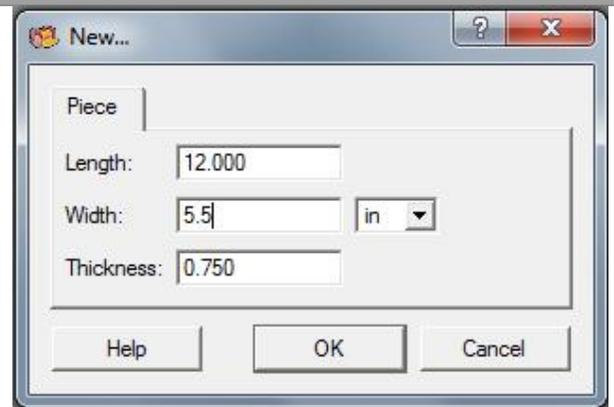
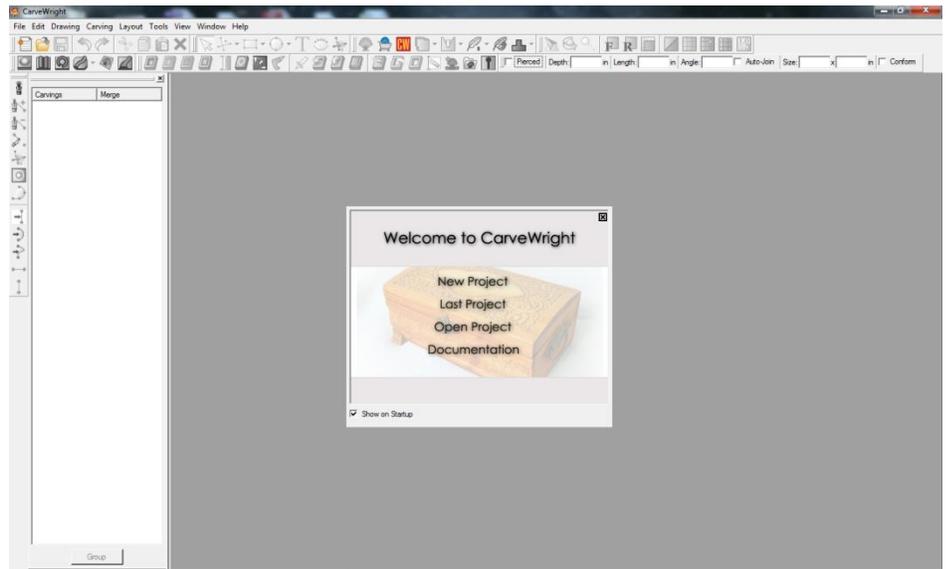
**NOTE:** Put in the dimensions of the project board. This needs to be the finished size of your project. Do not include the 7" margin required by the machine. (more on the 7" rule later in this lesson)

➤ **MENUS, TOOLBARS OR MOUSE**

➤ **MANIPULATING THE WORKPIECE**

Board piece will display on screen in three dimensions.

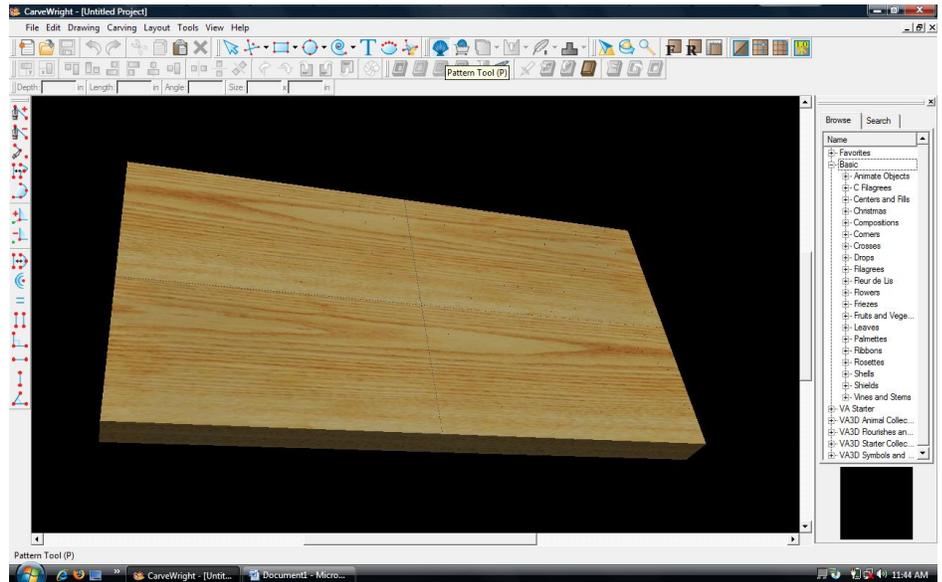
-  Zoom
-  Rotate
-  Pan
-  Front
-  Rear



## PATTERN PLACEMENT

 Select the “pattern tool” to open the pattern library along the right side.

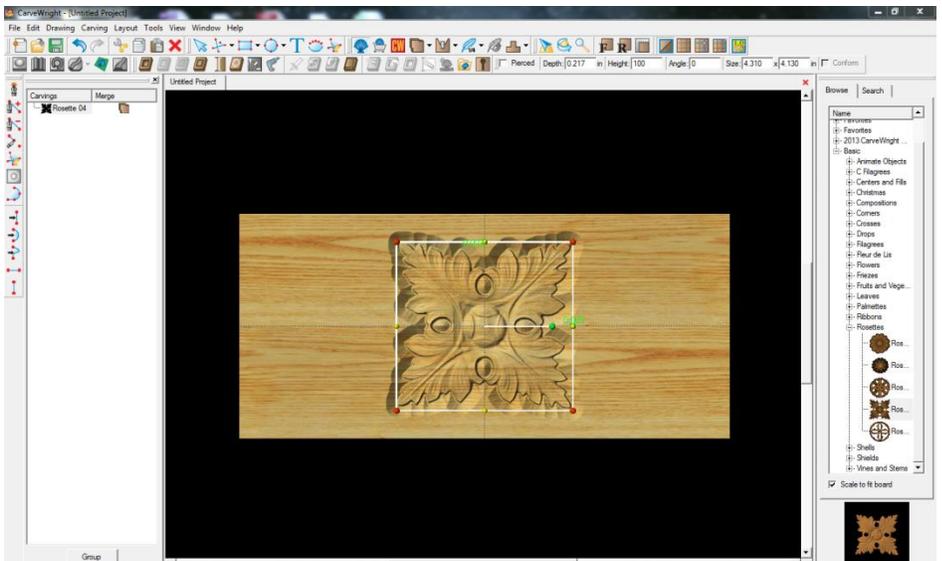
Select the basic folder and find the Rosettes. Select Rosette 04 and place in on the board.



## ➤ PATTERN MANIPULATION

Use Red Nodes on the corners to Scale the pattern larger or smaller without skewing the pattern.

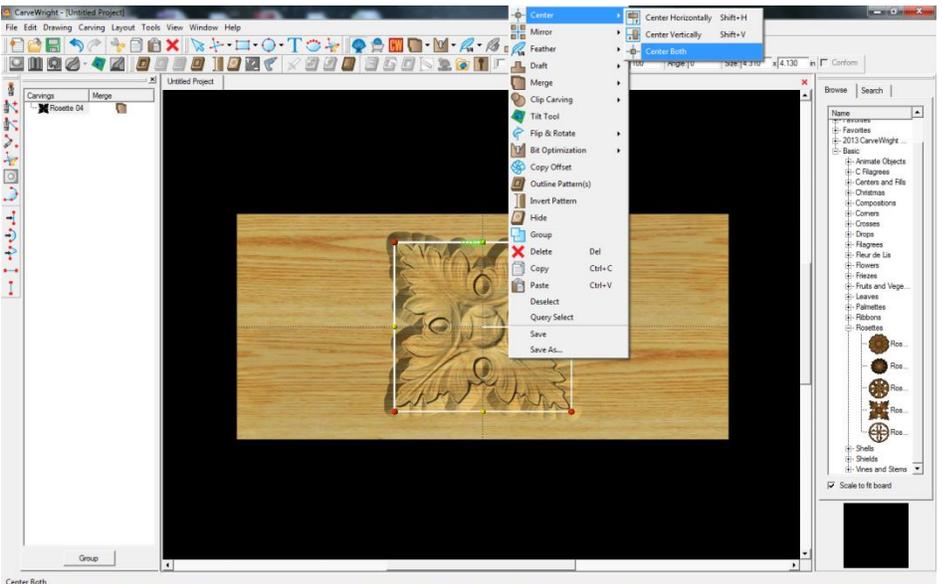
KEEP OUT ZONE: Top .5” unless using sled to protect Board Tracking Roller.



## ➤ CENTERING

 Right-Click on pattern to bring up menu of available options.

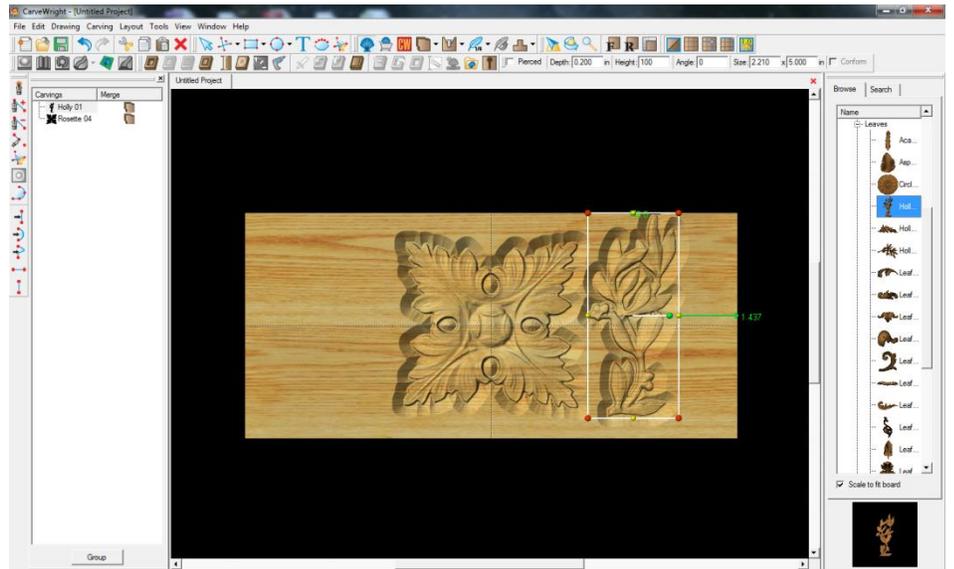
Select “Center”  
“Center Both”



➤ PATTERN PLACEMENT

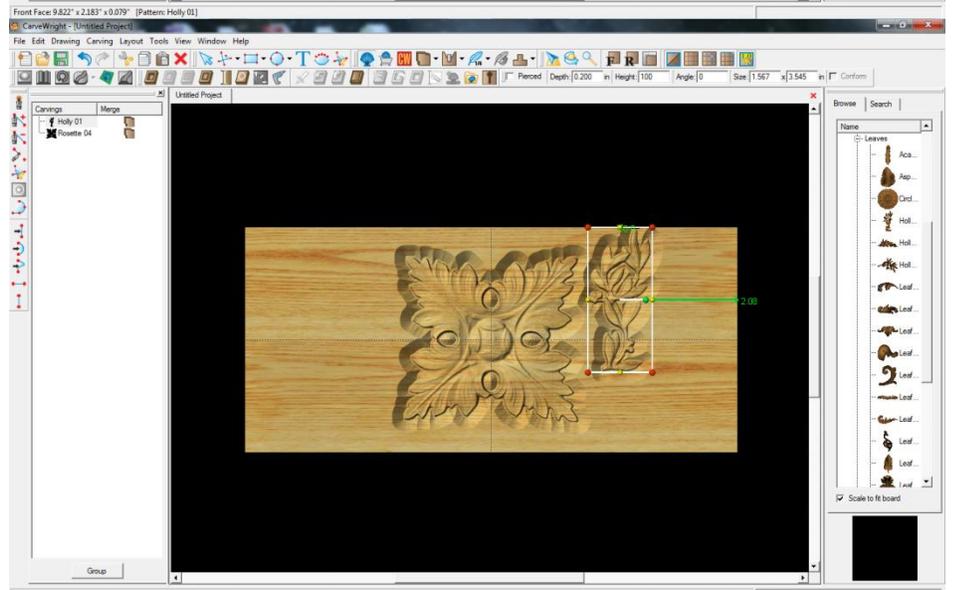
Open the Leaves folder under Basic in the Pattern Library.

Select Holly 01 and place the leaves on the board.

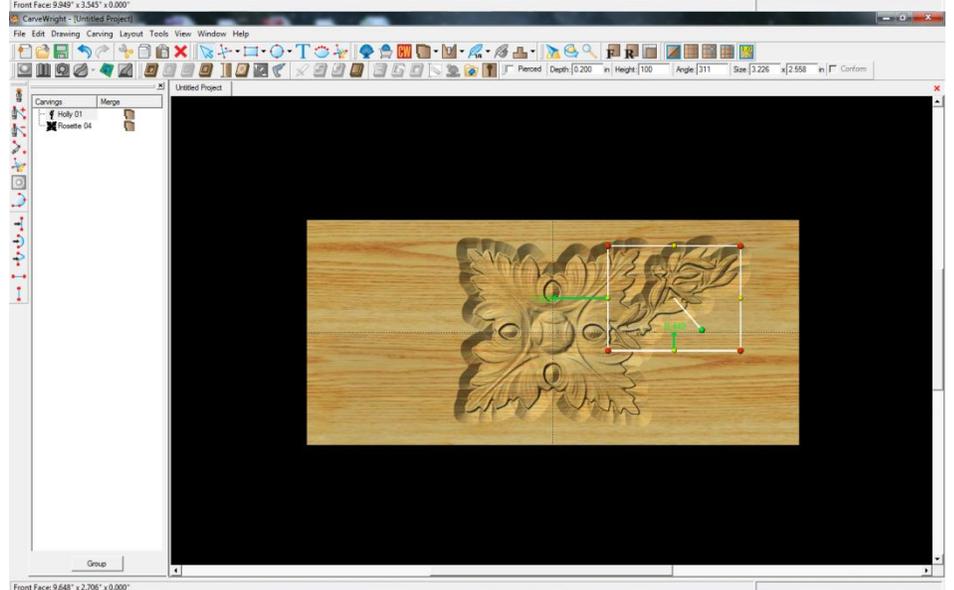


➤ PATTERN MANIPULATION

Scale using the red corner dots.



Rotate using the green dot.



➤ MIRRORING



Select leave pattern.  
Right-click and select Mirror >  
Mirror All.

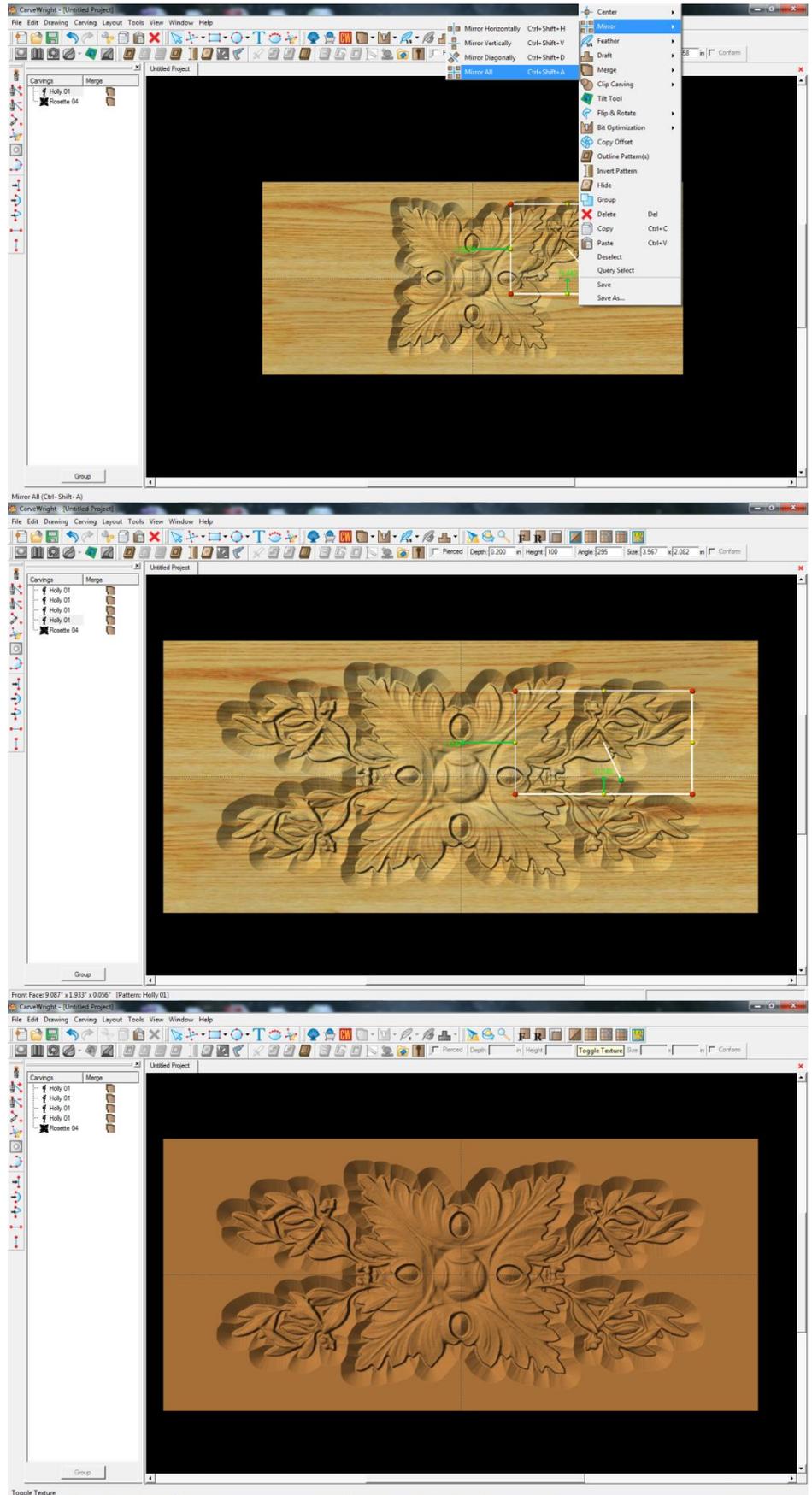
Notice the pattern is reflected on  
all four corners. If you move one;  
the others follow exactly.

Move patterns and adjust the  
angle & size to get your design  
arranged the way you like.

➤ TEXTURE



Toggle texture to see design.



➤ MANIPULATING THE WORKPIECE



Zoom in or out to view.



Rotate design to view it from different angles.

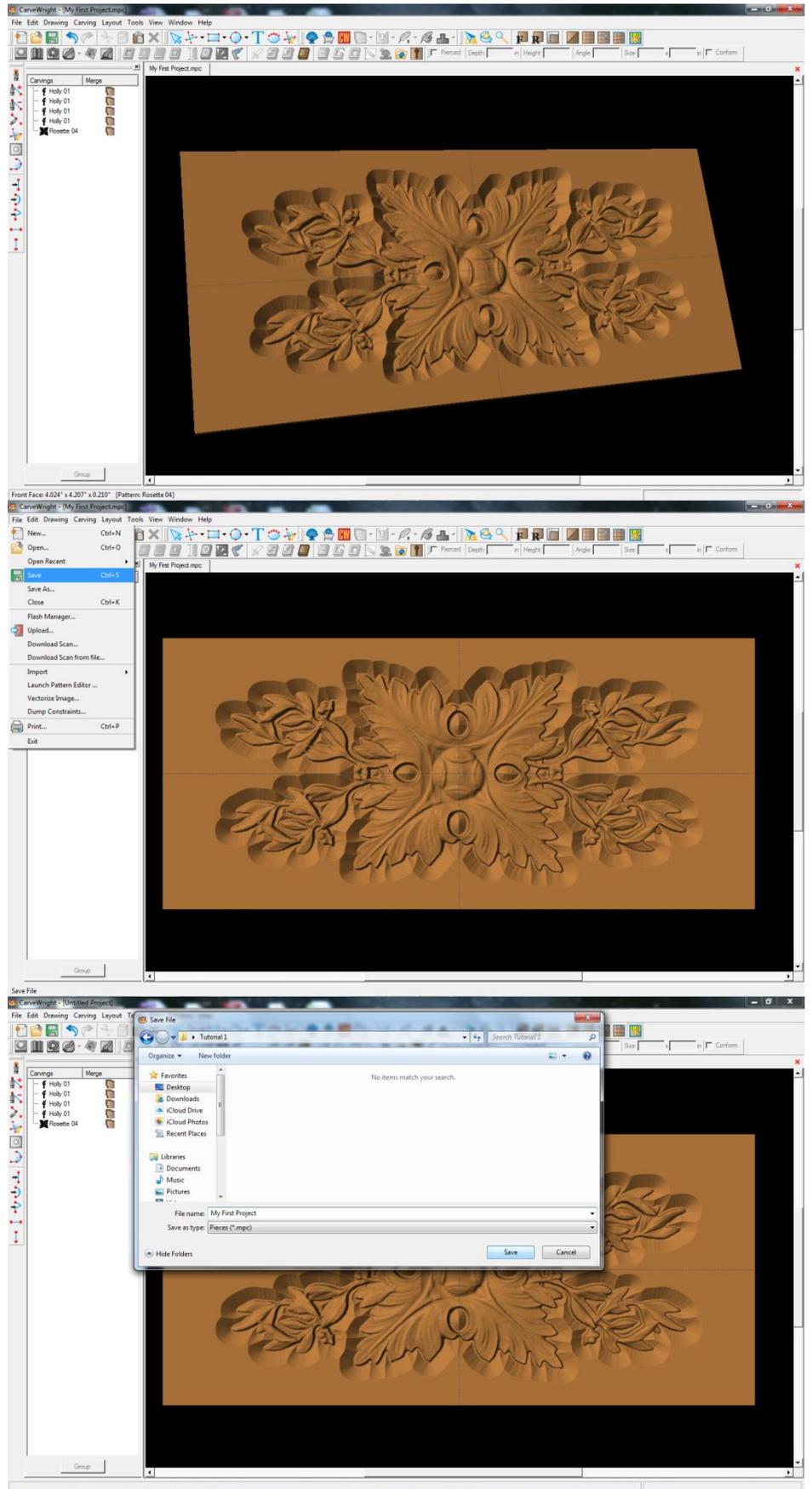
➤ MANAGING DATA



Select “File”, “Save”

Always save your project to your hard-drive, but NOT in the CarveWright Program Folder. Once uploaded to the card, you cannot bring it back into the software for further manipulation or changes.

\*\*\*\*\*IMPORTANT\*\*\*\*\*  
Name file and click “Save” to hard drive.



➤ UPLOADING TO MEMORY CARD



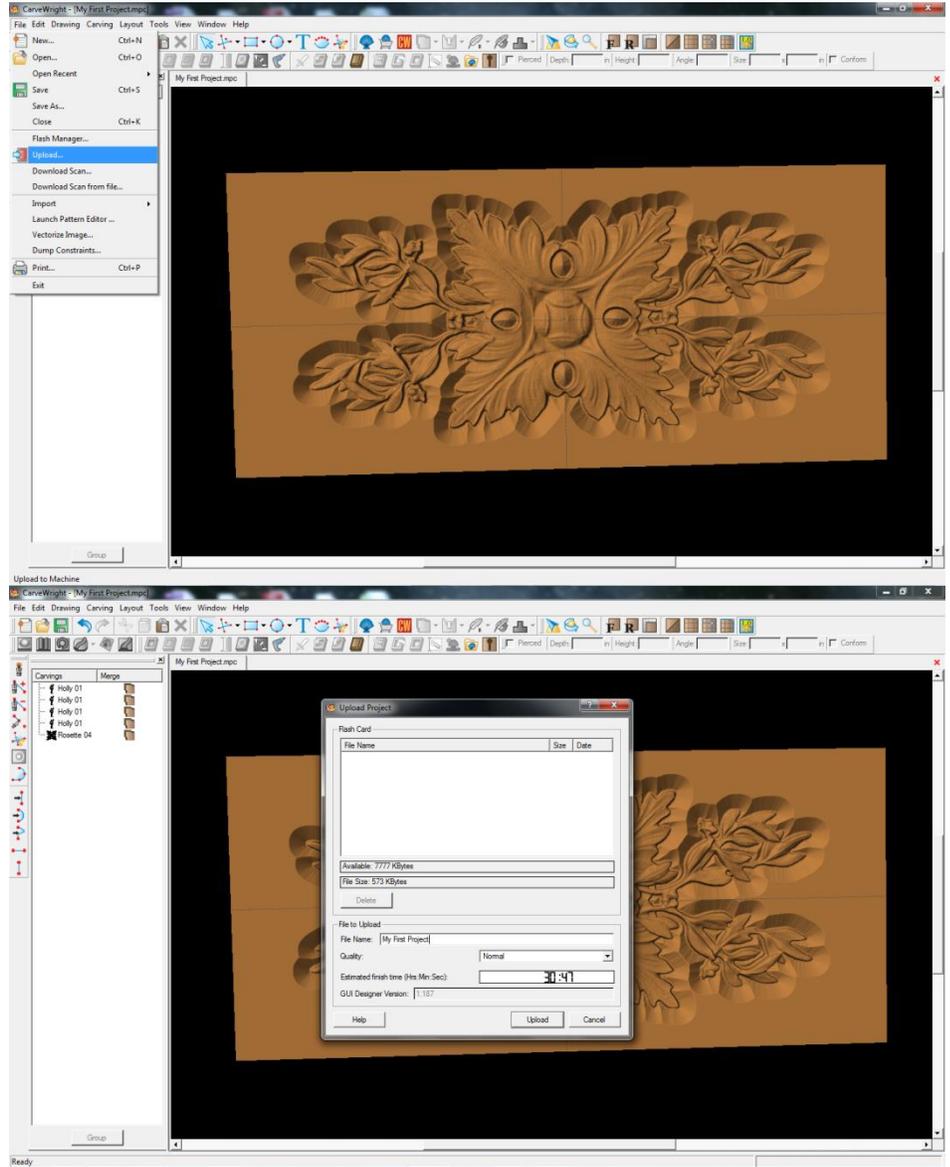
Plug in your memory card programmer and insert the memory card.

Select “File”, “Upload”

Notice the estimate time based on which quality setting is selected. The higher the quality the slower the machine will carve.

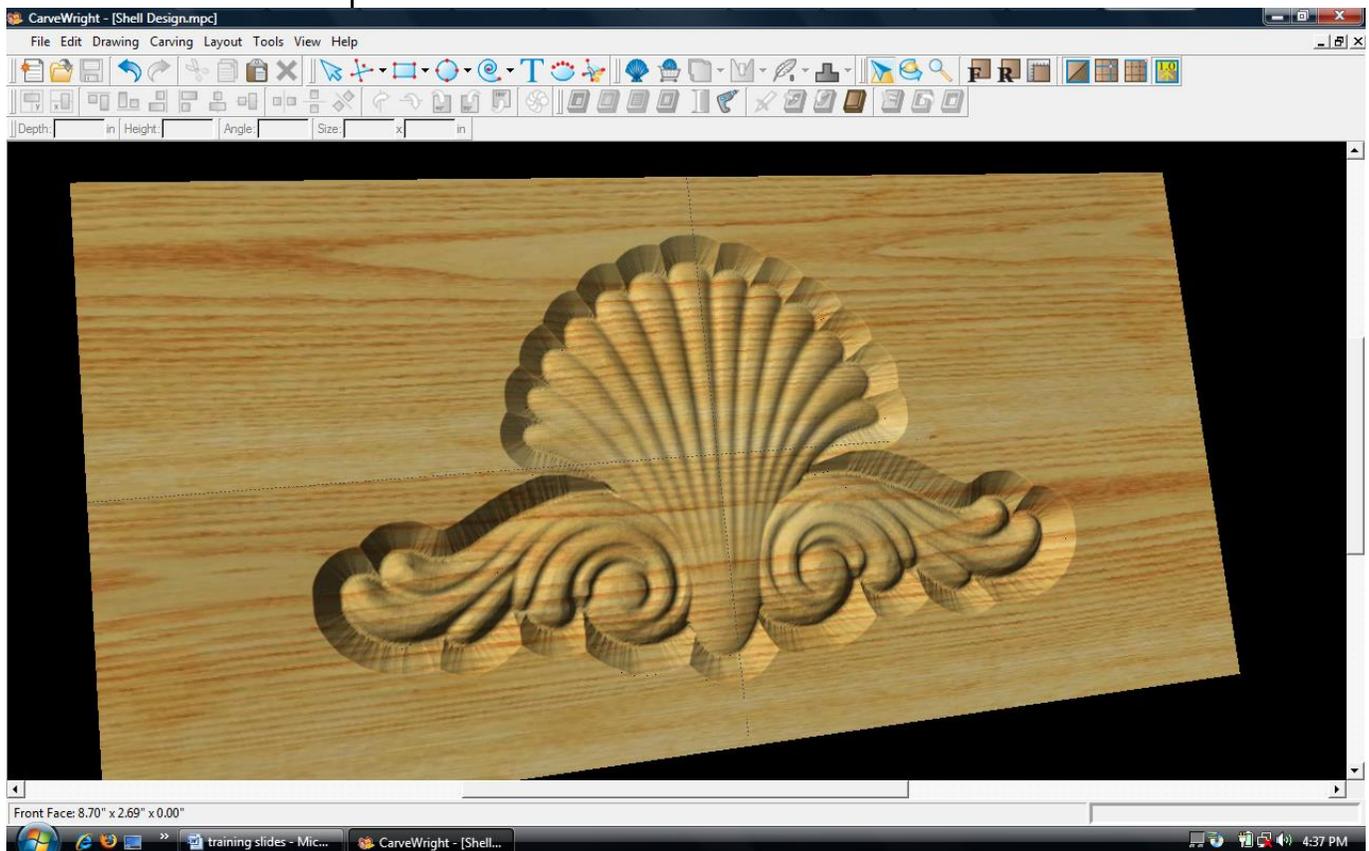
Save to memory card.

Example:  
*MyFirstProject\_N\_31*  
(Recognizable name\_quality setting\_estimated time to carve)



**This project covers the following design concepts:**

- STARTING SOFTWARE
- MENUS, TOOLBARS OR MOUSE
- MANIPULATING THE WORKPIECE
- PATTERN PLACEMENT
- PATTERN MANIPULATION
- CENTERING
- MIRRORING
- MANAGING DATA
- UPLOADING TO MEMORY CARD



**INSTRUCTIONS:**

➤ **STARTING THE SOFTWARE**

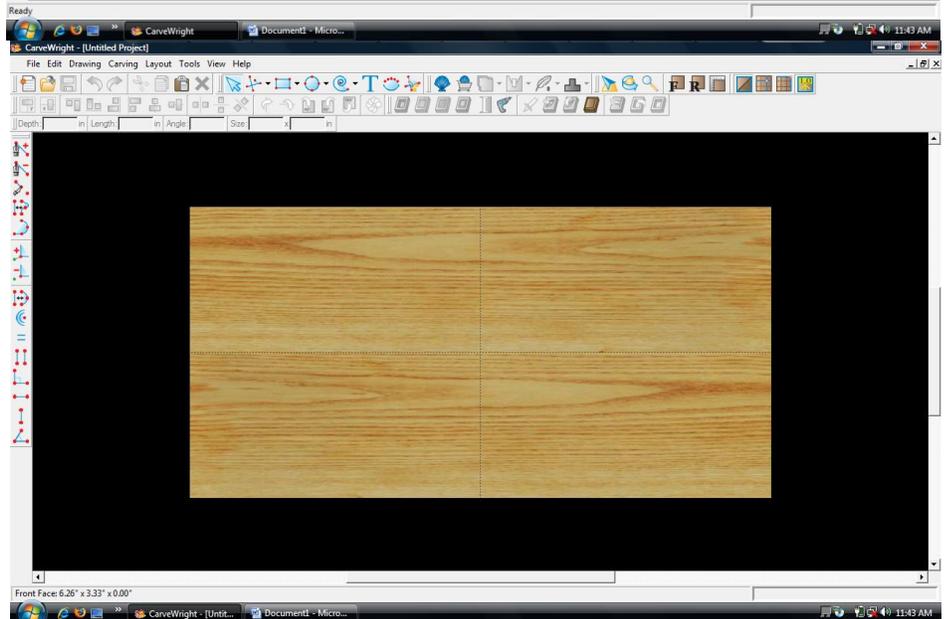
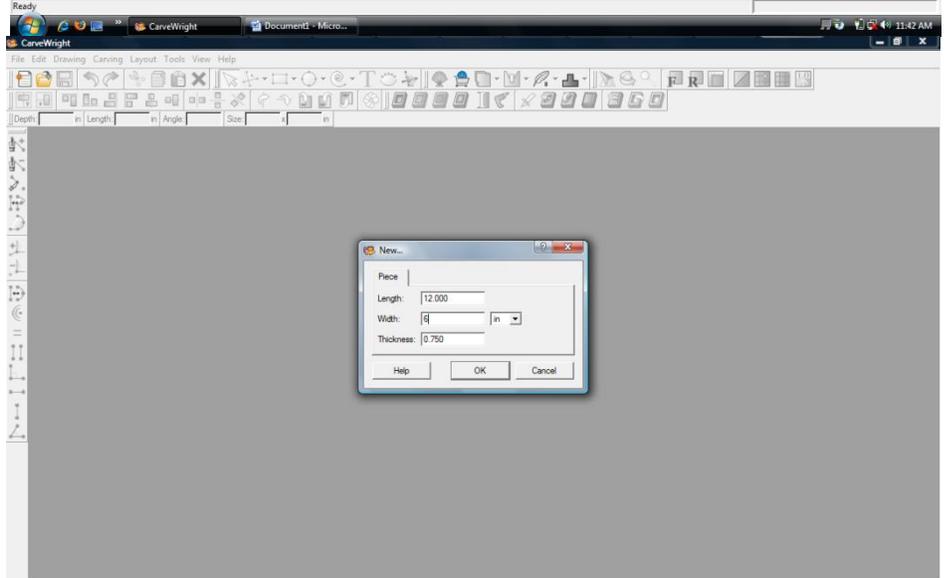
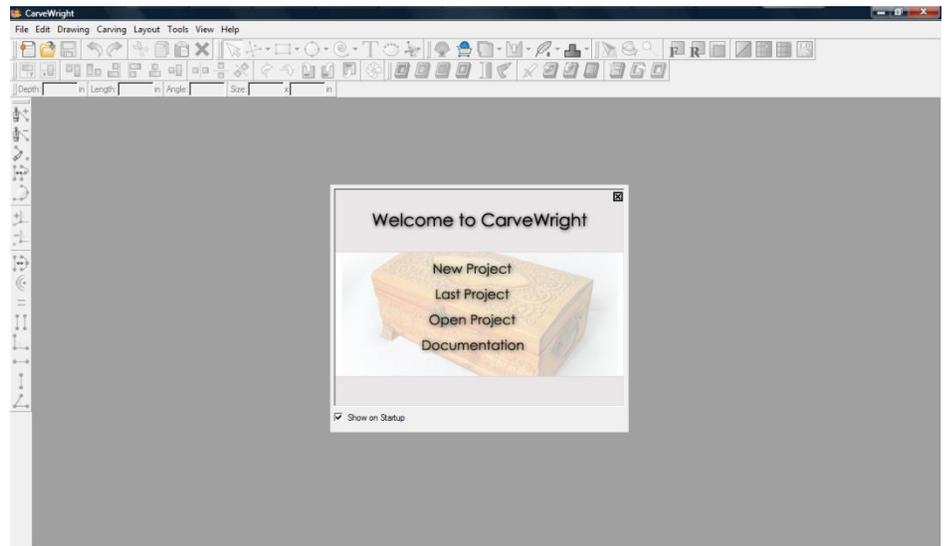
The Welcome screen appears with project options.

Select “New Project”

Set your board piece dimensions.  
Length: 12”  
Width: 6”  
Thickness: .75”

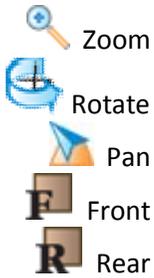
Click ok

➤ **MENUS, TOOLBARS OR MOUSE**



➤ MANIPULATING THE WORKPIECE

Board piece will display on screen in three dimensions.



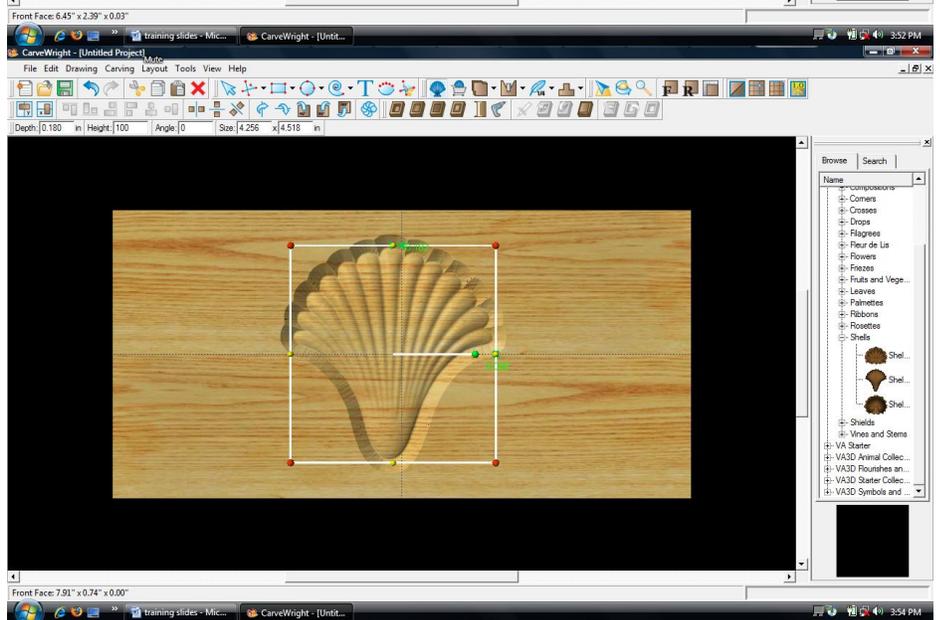
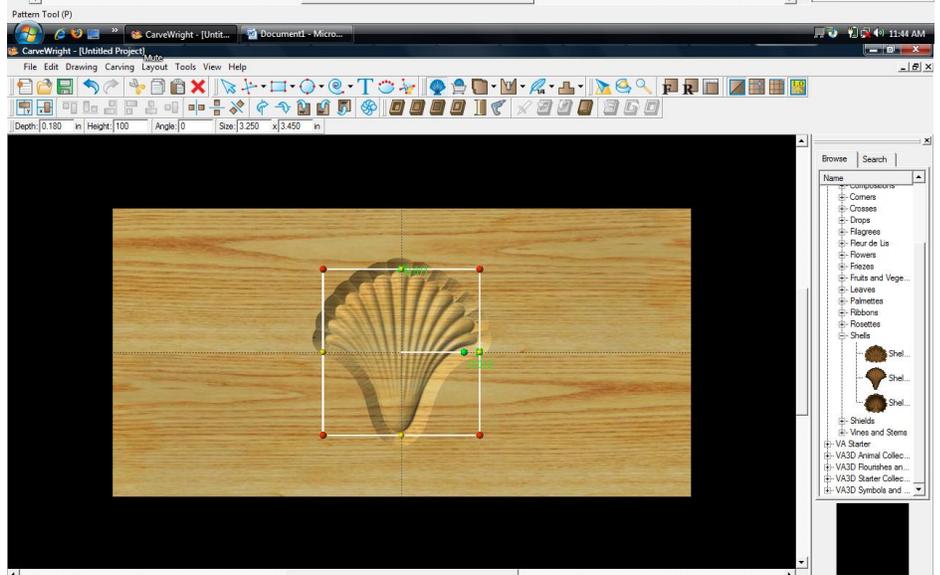
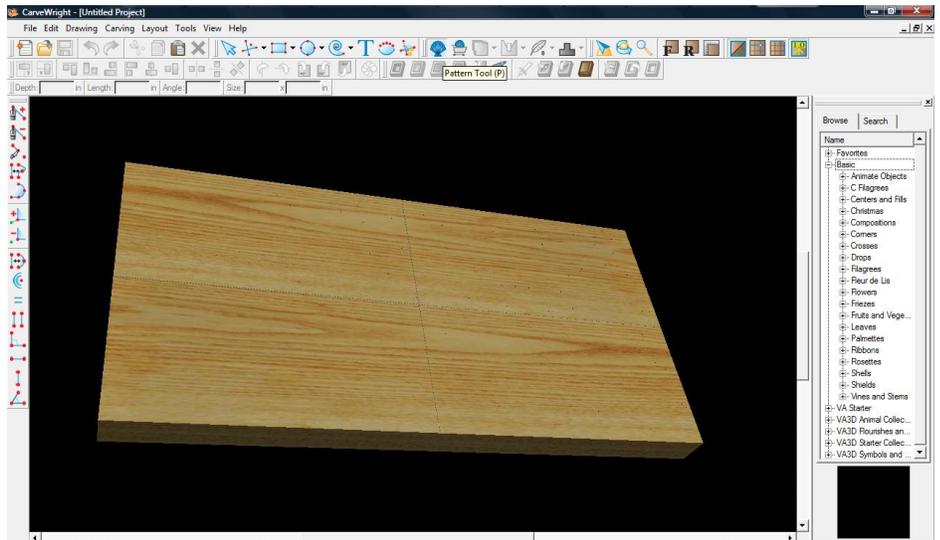
➤ PATTERN PLACEMENT

Select the “pattern tool” to open the pattern library along the right side.

Select “Shell 02” under “Shells” in the Basic Library. Click on board to place.

➤ PATTERN MANIPULATION

Use Red Nodes on the corner to Scale the Shell larger.

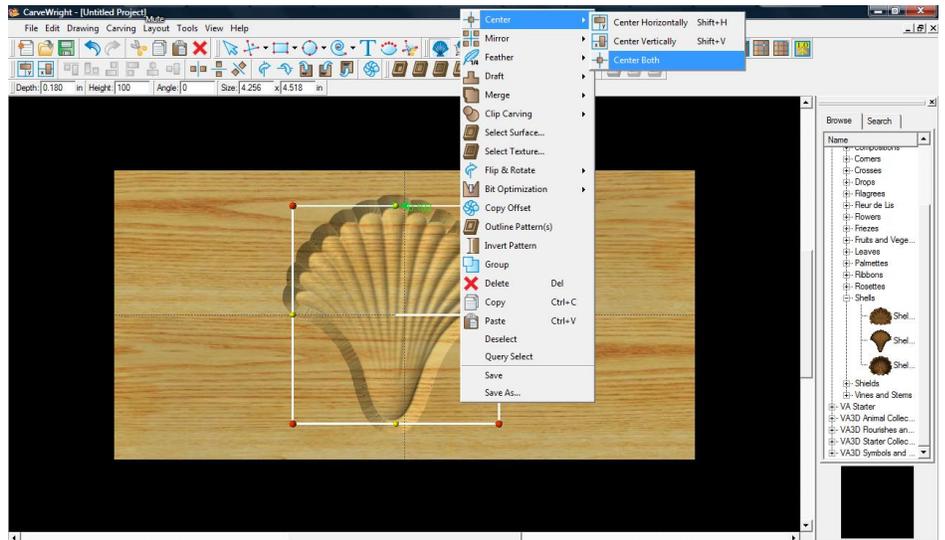


➤ CENTERING



Right-Click on “Shell” to bring up menu of available options.

Select “Center”  
“Center Both”

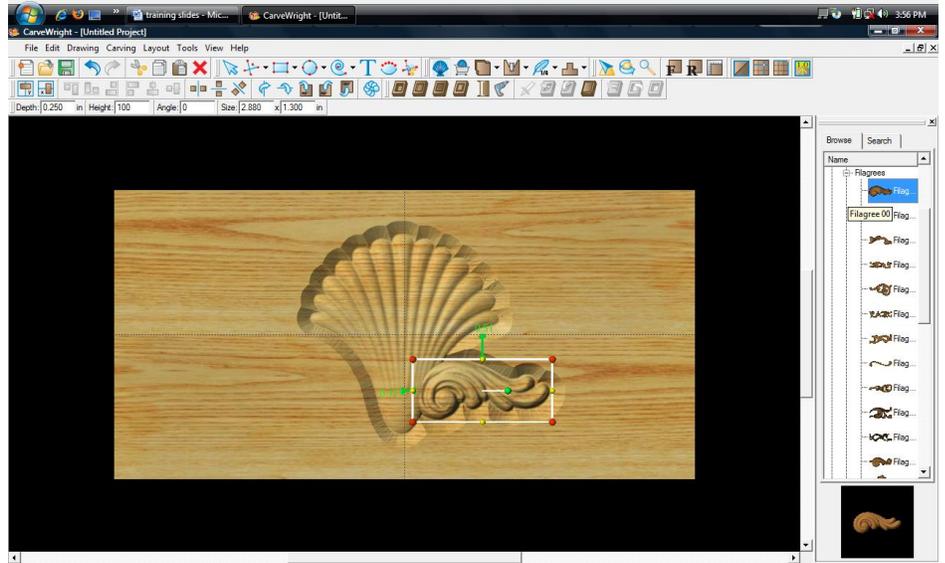


➤ MIRRORING

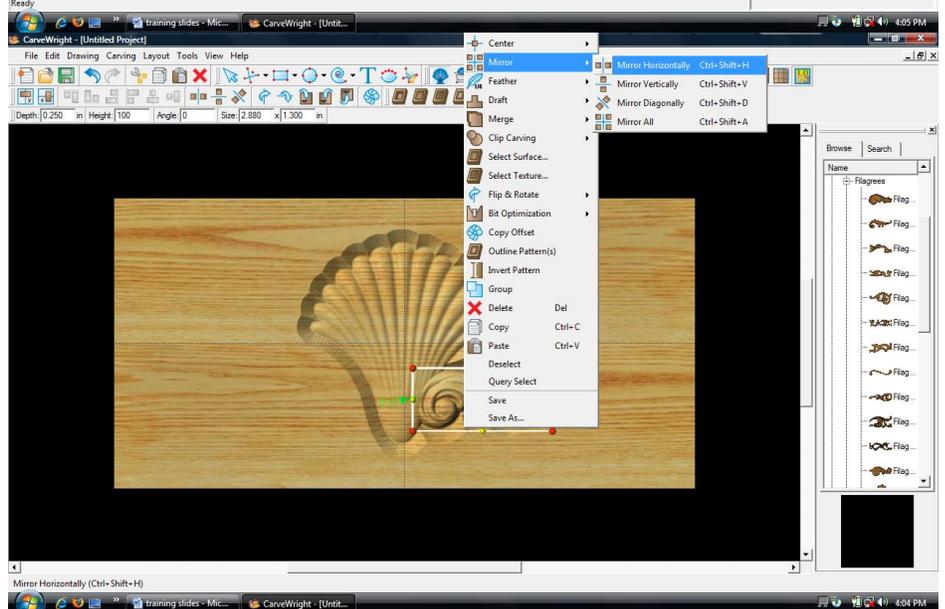


Select “Filagree 00” under  
“Filagrees” in the Basic  
library.

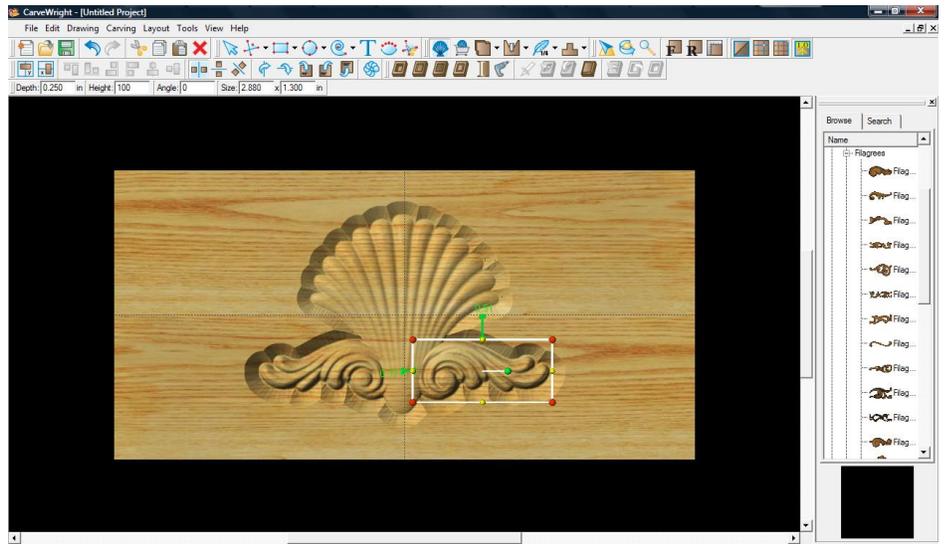
Place on board next to the  
shell.



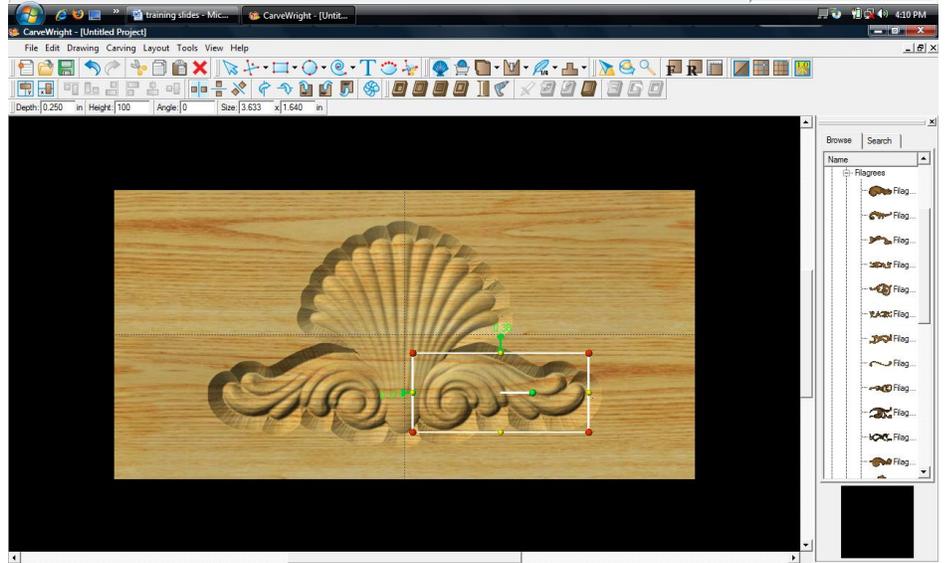
Right-Click and select  
“Mirror”, “Mirror  
Horizontally”.



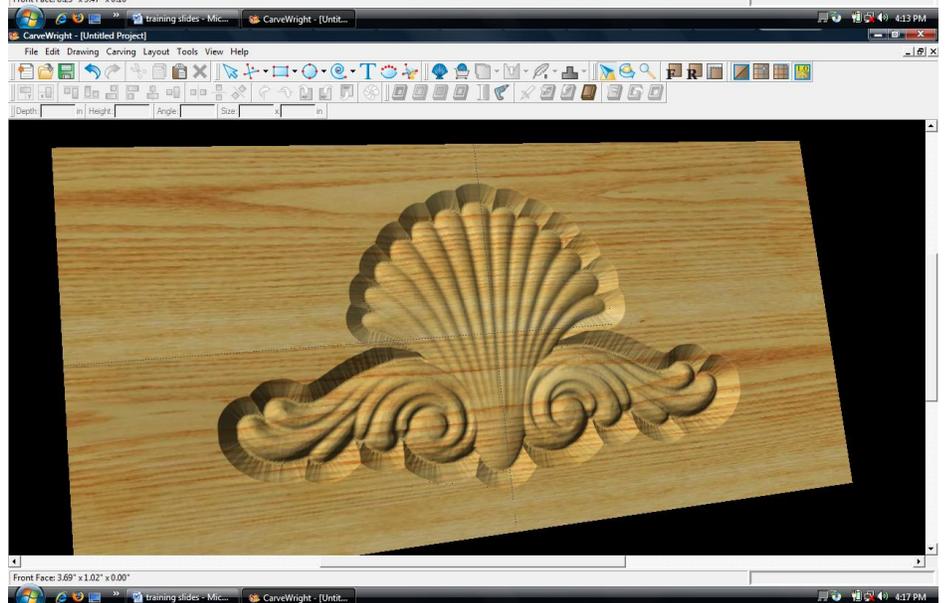
Notice the pattern is reflected across the board. If you move one; the other follows exactly.



Scale the pattern up and position around the base of the shell.



Rotate design to view it from different angles.



➤ MANAGING DATA



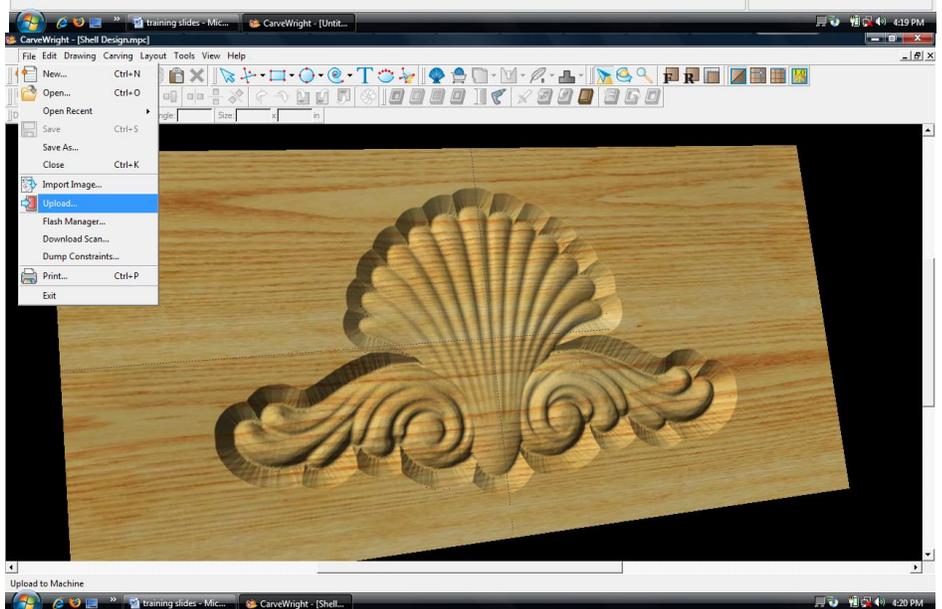
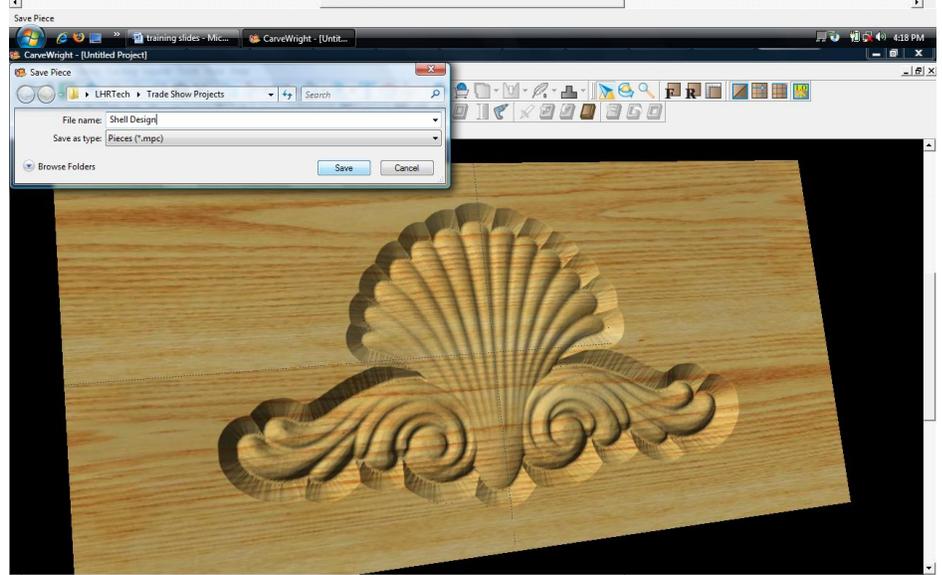
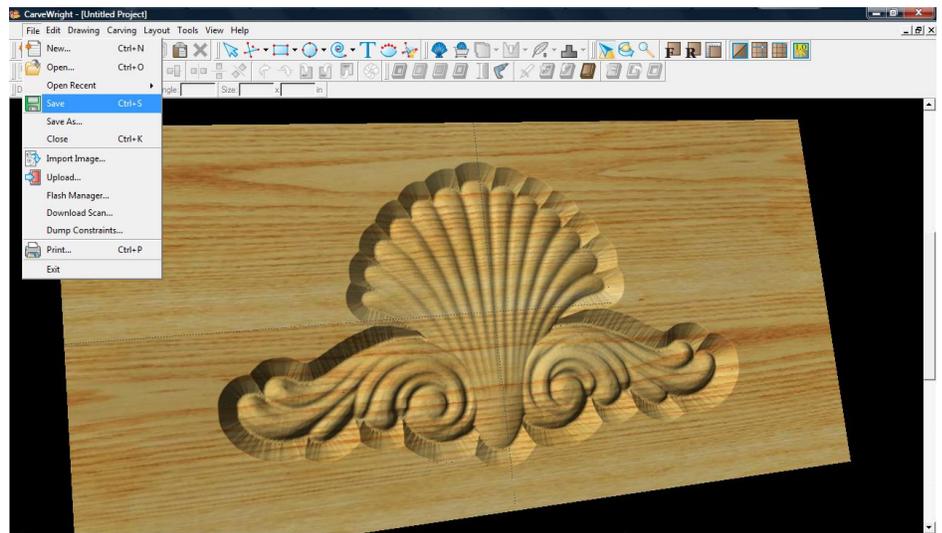
Select "File", "Save"

\*\*\*\*\*IMPORTANT\*\*\*\*\*  
Name file and click "Save"  
to hard drive.

➤ UPLOADING TO  
MEMORY CARD



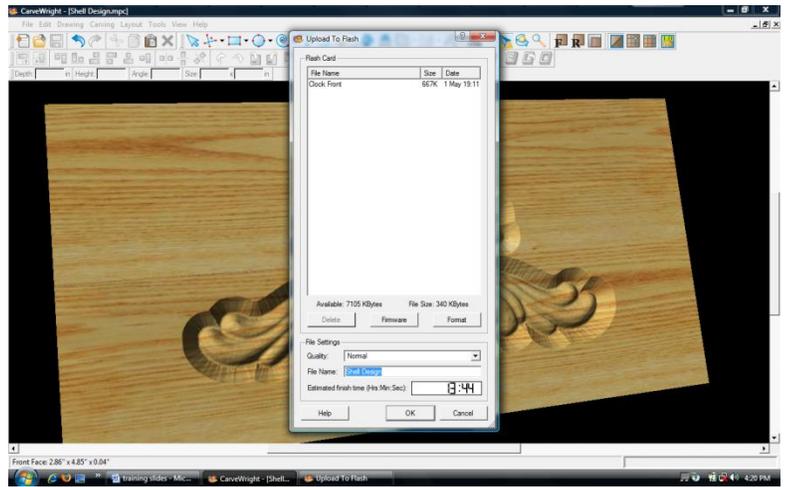
Select "File", "Upload"



Notice the estimated carving time of 13 min 44.

Save to memory card.

Example:  
*Shell\_N\_14*  
(Recognizable name\_quality  
setting\_estimated time to  
carve)



This project covers the following design concepts:

- ✓ STARTING SOFTWARE
- ✓ MENUS, TOOLBARS, SHORTCUT KEYS OR MOUSE BUTTONS
- ✓ MANIPULATING THE WORKPIECE
- ✓ PATTERN PLACEMENT
- ✓ PATTERN MANIPULATION
- ✓ CENTERING
- ✓ MOVE ELEMENT
- ✓ MIRRORING
- ✓ FINE TUNING & OPTIMIZATION
- ✓ ADJUSTING DEPTH
- ✓ MANAGING DATA
- ✓ UPLOADING TO MEMORY CARD
- ✓ SELECT QUALITY SETTING
- ✓ NAME PROJECT



## INSTRUCTIONS:

### ✓ STARTING THE SOFTWARE

Open the CarveWright Project Designer Software

*The Welcome screen appears with project options.*



Select "New Project"

Set your project board dimensions.

Length: 7"

Width: 7"

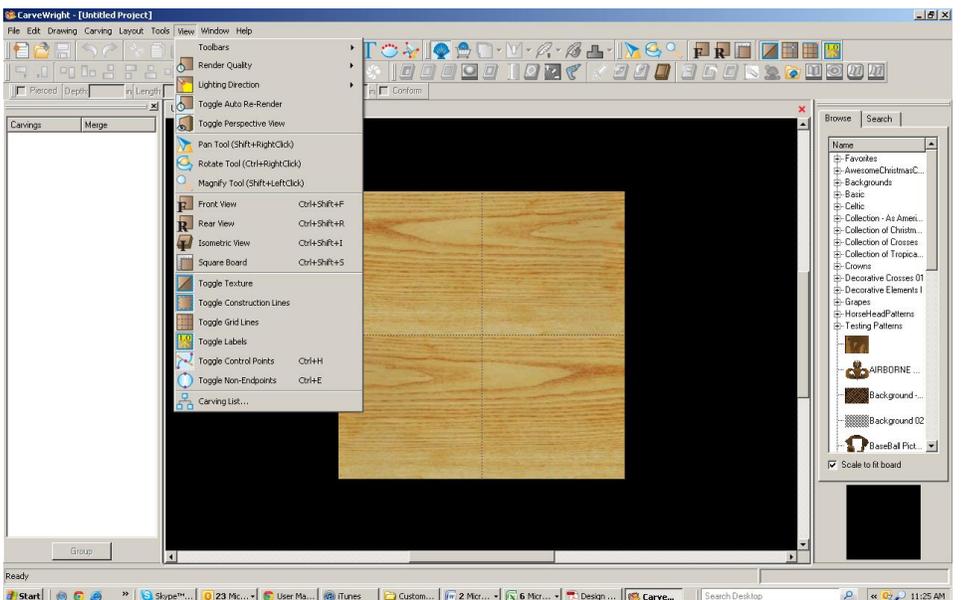
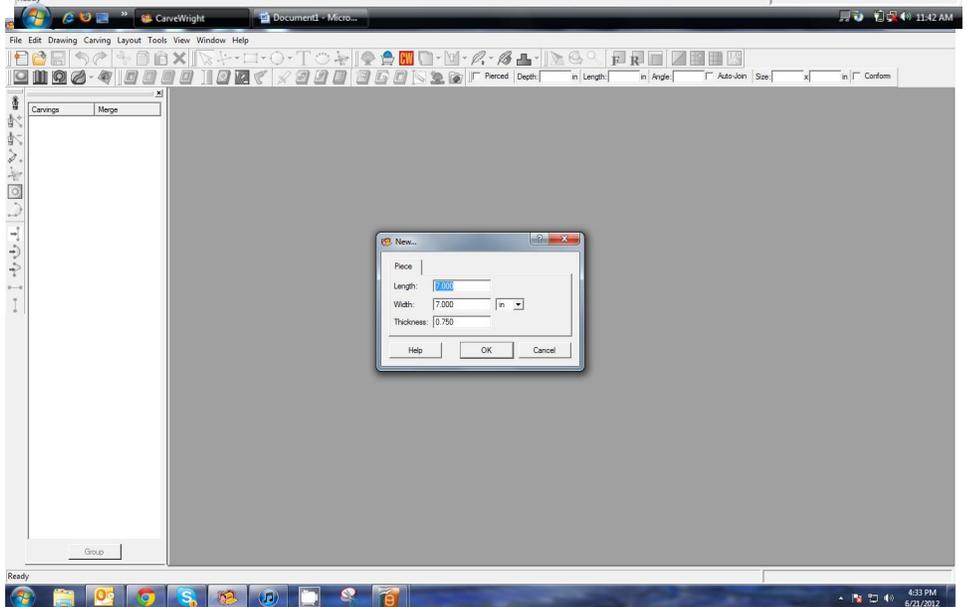
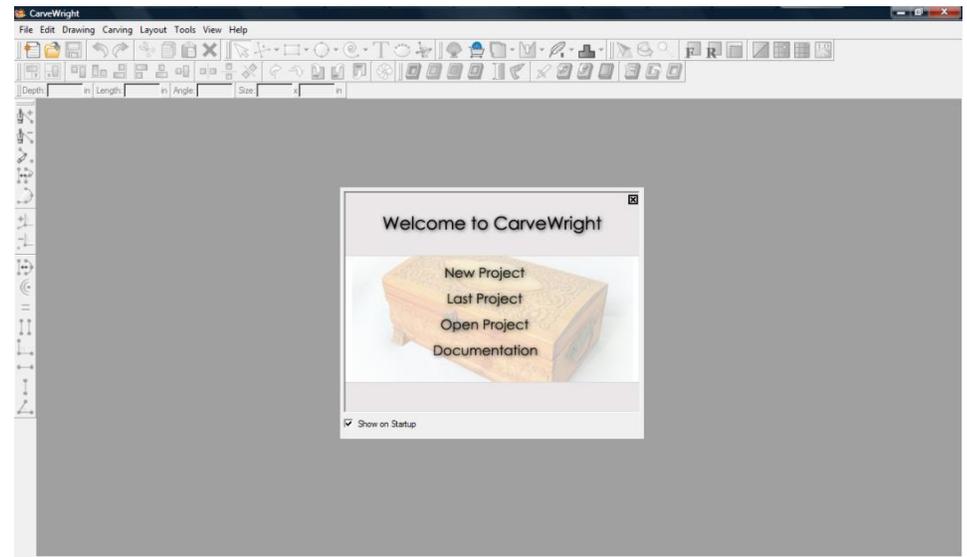
Thickness: .75"

Click OK

*The project board size is not necessarily the actual size of the board being put into machine.*

### ✓ MENUS, TOOLBARS, SHORTCUT KEYS OR MOUSE BUTTONS

*For every software function, we provide you three distinct ways to access that function. They are usually menu, icon or right-click. Some common functions, such as Copy and Paste, also use shortcut keys. These will also work in Project Designer.*



✓ MANIPULATING THE WORKPIECE

Board piece will display on screen in three dimensions. You can use these tools to get a different view of your project board.



✓ PATTERN PLACEMENT

Select the "Pattern Tool"  icon to open the pattern library along the right side.

Select "spring" under "Season Patterns" in your Favorites library.

Click once on pattern & once on board to place or click & drag to the board. Double-clicking will attempt to open it in Pattern Editor Software.

✓ PATTERN MANIPULATION 

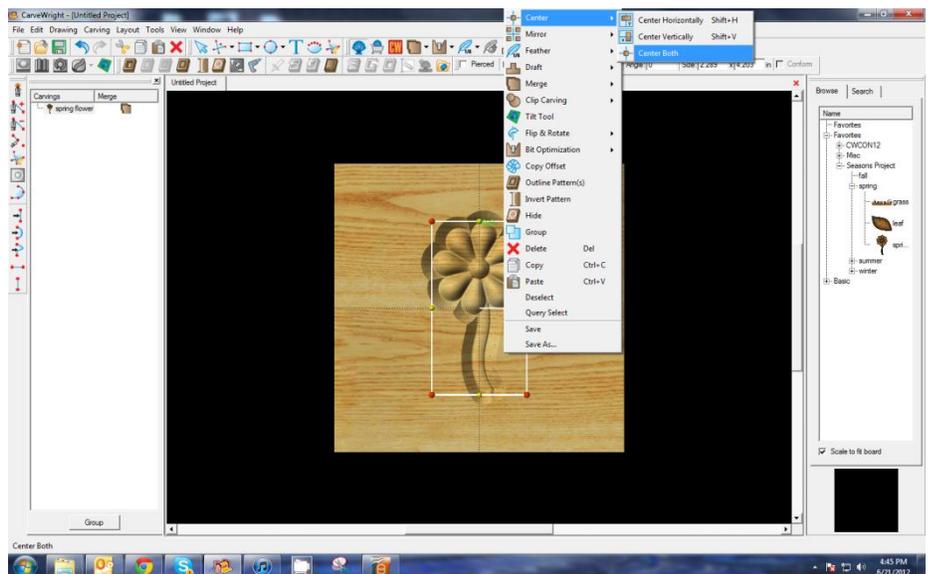
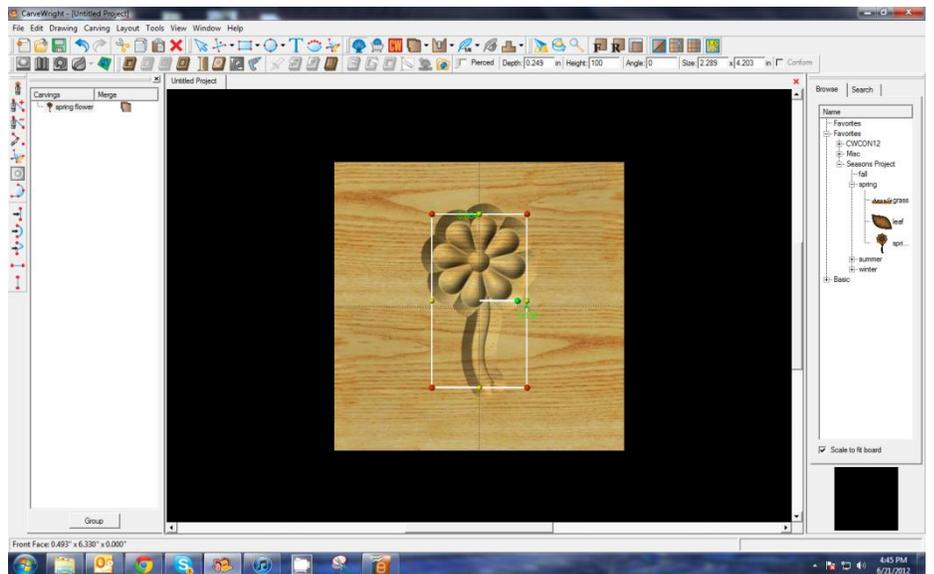
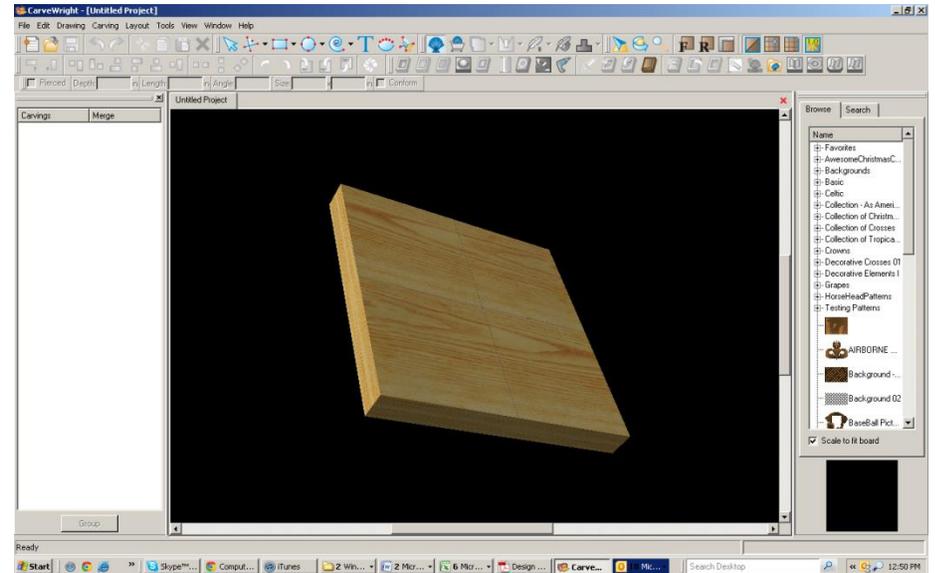
Use Red Nodes on the corner to Scale the element larger or smaller.

Yellow nodes will stretch or skew the element.

✓ CENTERING 

Right-Click on "spring" to bring up menu of available options.

Select "Center" > "Center Both"   
 If item is grey, then it is not available with the selected element.



✓ PATTERN PLACEMENT 

Select "leaf" under "Season Patterns" in your Favorites library.

Place on board next to the stem.

✓ MOVE ELEMENT

To move a selected element, find the point of the element where your cursor turns to 4 arrows pointing in north, south, east & west directions.

Click once and drag to location.

✓ MIRRORING 

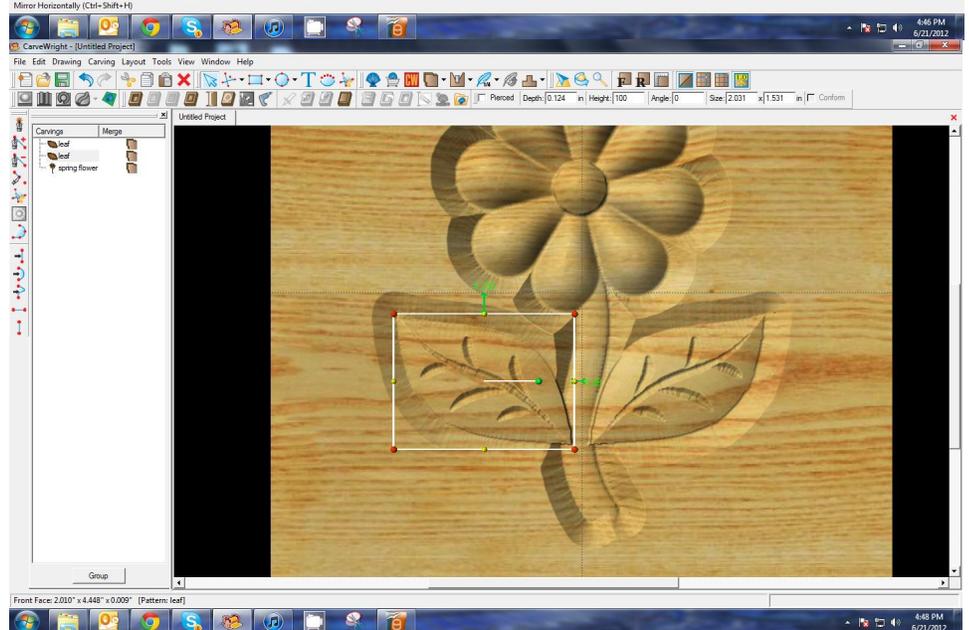
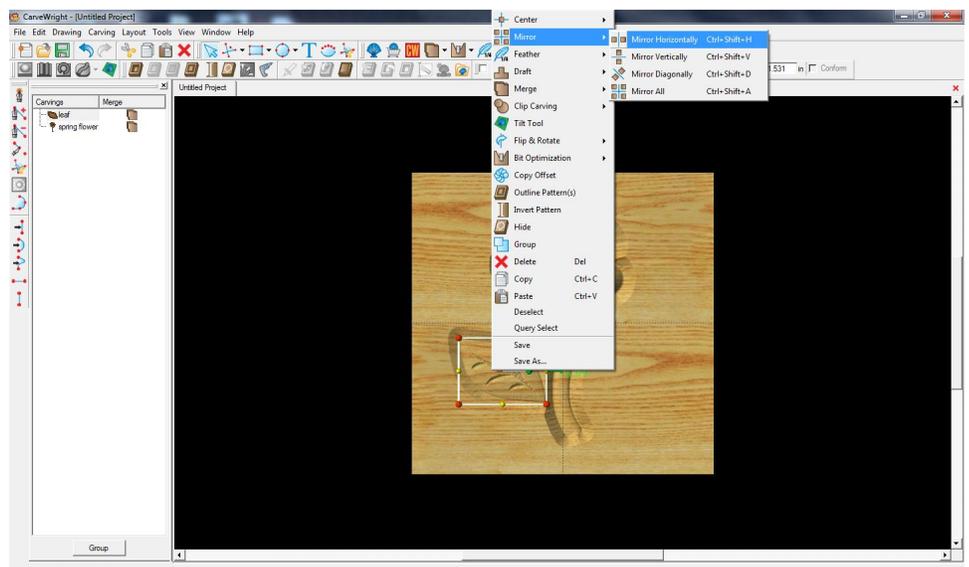
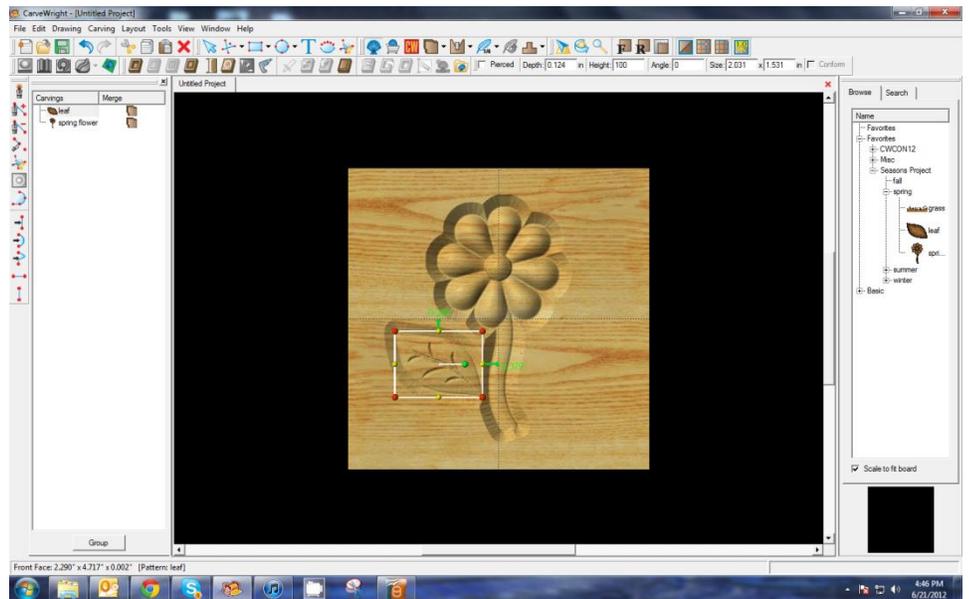
Right-Click on the element and then select "Mirror" > "Mirror Horizontally".

*Notice the pattern is reflected across the board's centerline.*

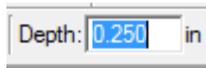
*Scale the pattern to size and position around the base of the stem.*

✓ FINE TUNING & OPTIMIZATION OF YOUR PROJECT

*You should make adjustments to one of the two elements. Adjusting the depth of the flower may make it loose some of its detail. Plus, you may want the leaf to appear behind the stem.*



✓ ADJUSTING DEPTH



Change the “Depth” of the leaf to .250”  
Hit “Enter” to apply.

*If you make changes to one mirrored object, it is reflected in the other(s).*



Rotate or zoom in on your project to view it from different angles and make any necessary adjustments.

✓ MANAGING DATA

Select “File” > “Save” 

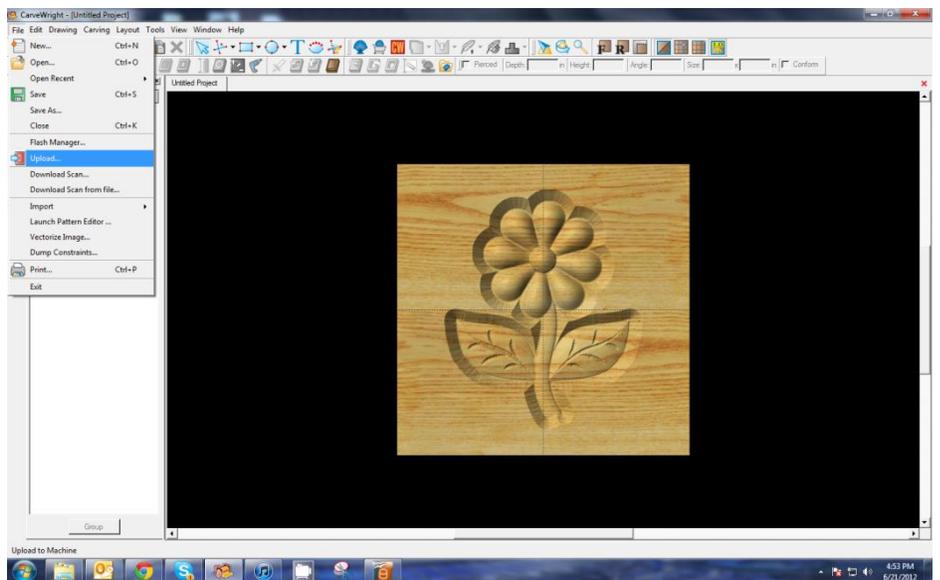
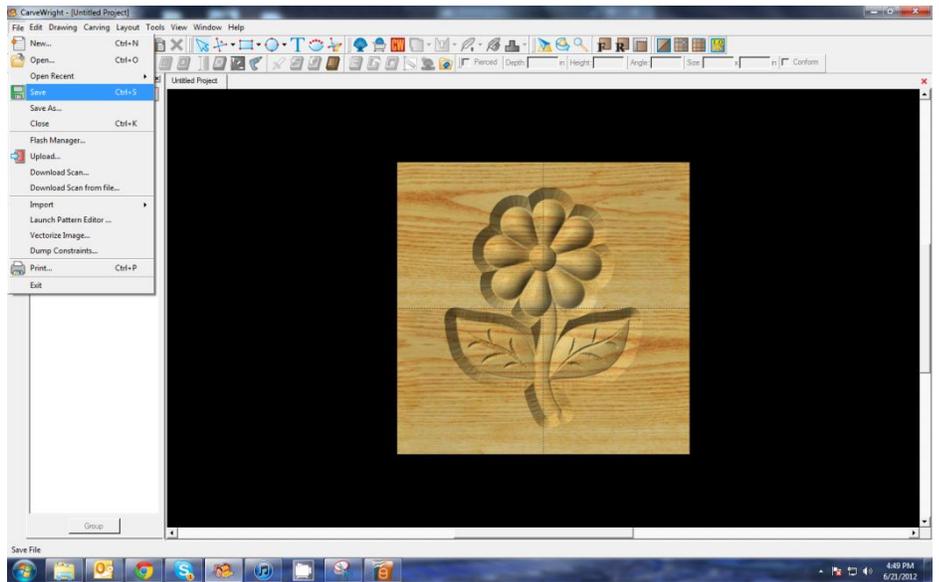
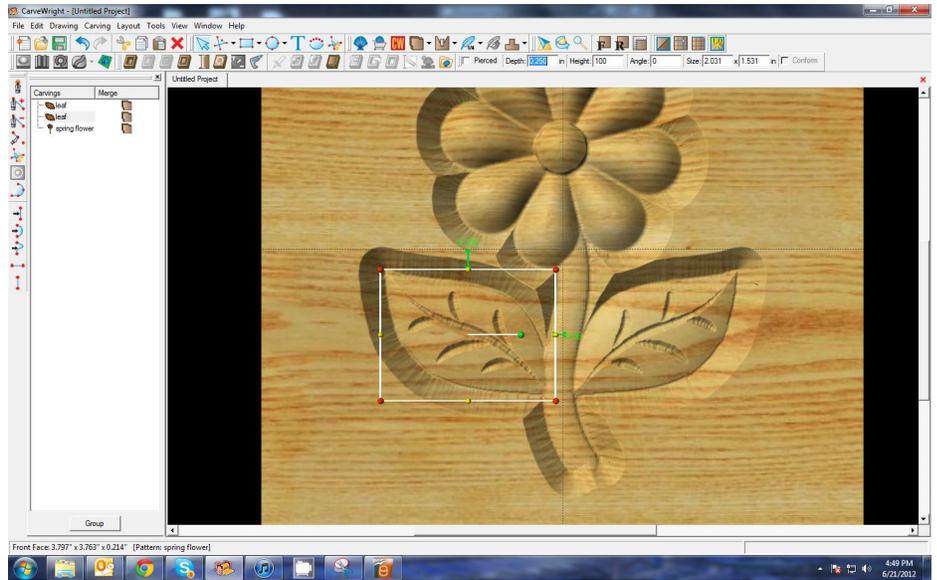
**\*\*\*\*\*IMPORTANT\*\*\*\*\***

**Once a project is uploaded to a memory card, it cannot be brought back from the memory card into the software. Always SAVE YOUR PROJECT on your hard drive. A Projects folder is recommended and you should know where you saved it.**

Name file and click “Save”

✓ UPLOADING TO MEMORY CARD

Make sure your Memory Card  & Programmer are properly attached via your USB port, Select “File” > “Upload” to save to your memory card.



## Select Quality Setting

- DRAFT
- NORMAL
- BEST
- OPTIMUM

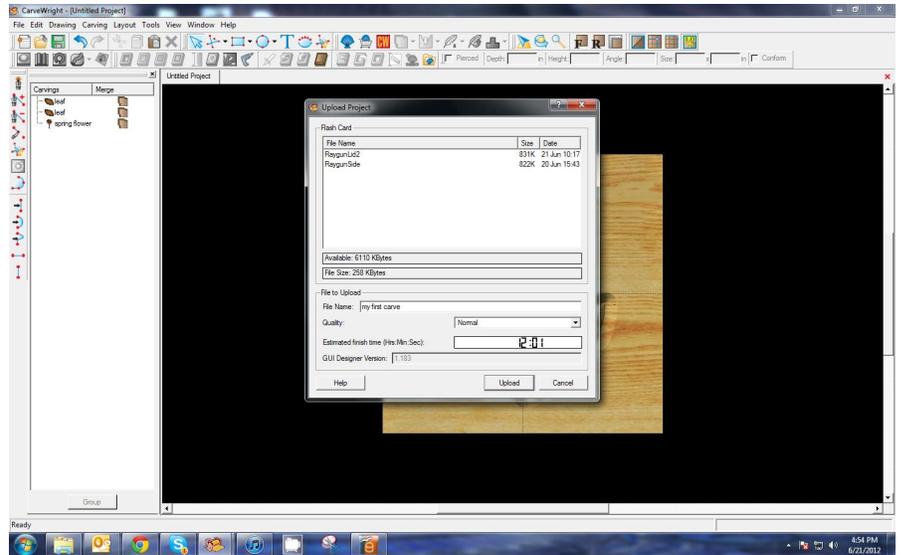
*These settings determine the number of passes the machine makes to carve your project. The more lines the better the surface finish. Make your decision based on material type, fondness of sanding vs. machine time, & test carve vs. final. Notice the estimated carving time differs by quality setting.*

## Name Your Project

*Example:  
myfirstcarve\_N\_12m  
(recognizable name\_quality  
setting\_estimated time to carve)*

Click "Upload"

NOTE: Actual board to be placed in machine should be 7" longer or you should use a sled that has 3.5 extra inches on each end to STAY UNDER THE ROLLERS.



WAIT! Don't start carving yet!

There are still more things to know!

### *PROPER PREPARATION OF MATERIALS*

**P**roper board preparation is crucially important to successful operation of the CarveWright System. The quality of your output will depend on the quality of your materials. Following some simple steps will ensure you greater success with your projects.

*All of the topics addressed in this document are outline and discussed in the Hardware Manual, as well as the CarveWright Instructional Video.*

#### **BOARD PREPARATION**

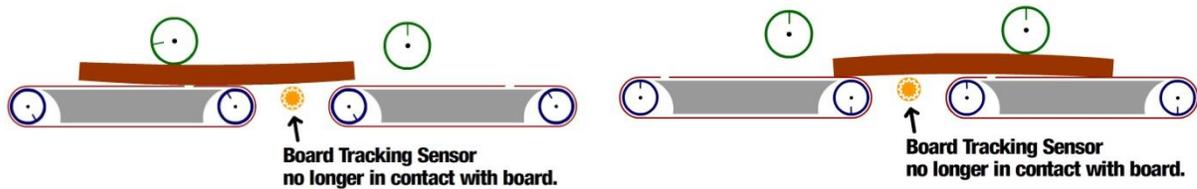
The actual board that is loaded into the machine for carving needs to meet some basic requirements for success.

Here's why. The machine measures the board using two sensors. One is an electronic eye (board sensor assembly) at the base of the z-truck, which measures the width and the other is the brass wheel or roller (board tracking encoder) that measures the length of the board. The board must maintain constant contact with the wheel in order to get an accurate measurement and project results.

Here are some of those basic requirements for the material being put into the machine:

#### NEEDS TO BE STRAIGHT AND SQUARED

If the board varies in its width, it can become wedged in between the squaring plate and the sliding plate. This can cause improper board tracking and can possibly break some teeth on the x-drive gears.



#### CANNOT HAVE ANY WARPING

Warping can cause issues that prevent the board from making proper contact with the board tracking encoder. The little brass roller on the keypad side of the machine is the board tracking sensor. Its teeth actually track the edge of the board creating the length measurement. Anything that interferes with that measurement will result in an error or failed project.

#### 90° ANGLE AND FREE FROM DEFECTS

The board's edge that will ride along the board tracking sensor needs to be a 90° angle (not curved) and free from any knots, divots or other defects.

#### NEEDS TRACTION

The board tracking sensor needs to maintain steady contact with the roller. A board that is too slick can slip. A strip of masking tape along the bottom edge that goes over the roller will give it the extra bite that it may need.

#### STAY UNDER THE ROLLERS

If one end of the board pops out from under the 80 or so lbs of pressure that the compression rollers have, the board could pop up and lose contact with the roller. Also, if you have the required outfeed rollers for boards over 3 ft, you want to make sure the board is not "lifted" off the wheel as it goes onto an outfeed roller that may be set too high.

#### MASKING A BOARD

The board sensor assembly needs to "see" a consistent reflection as it measures the board width. If your board is a dark color, either naturally or painted, has knots in the path that it is trying to measure or has a great variation in colors, you may want to run a strip of masking tape (beige) across the area that it is trying to "see".

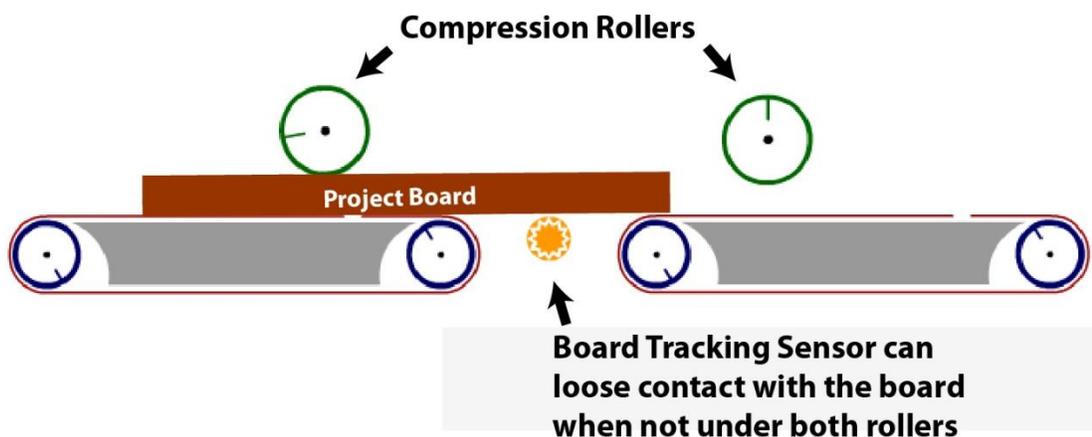
**THE 7 INCH  
RULE**

One of the most important items (and commonly missed) when getting started with the CarveWright CNC System is that the projects you carve need to be “Under the Rollers”. To do this, you need to make your actual project board 7” longer than the “virtual” board that appears in the Project Designer software when you are laying out a project. This creates a 3.5” margin on both ends of the board for the machine to keep the board under the compression rollers to achieve the highest quality and to avoid problems with the project.



**FIG 2.2.2 - 7 Inch Rule. A & B showing the extra 3 1/2 inches on both ends of the board**

When you load a project board and crank the machine down onto it, there are two compression rollers that engage the board and hold it into place. These 2 rollers are what you want to stay underneath. This means when the board is moving back and forth creating your project the board is always held down by both rollers. When a board comes out from under one of the rollers, the board will slightly “pop up” on the end that is no longer held down. This can result in several issues; the board can come off the board tracking sensor creating a mis-measurement or error, it can cause an unsightly “snipe”; or a change in elevation of the carving; or, in the case of cutouts, the added stress this can put on the cutting bit can cause the bit to break.



**FIG 2.2.3 - Stay Under Rollers. This board is under only one roller.**

**NOTE: If you don't have the extra 7 inches and you select "YES" to stay under rollers, the machine will automatically shrink your project down to add the 3.5" to both ends. Your project will then be squished down, so the machine can claim the 3.5" on each end.**

**FOLLOW THESE STEPS TO MAKE SURE YOU ARE FOLLOWING THE 7" RULE.**

- Make absolutely sure that your real board size is AT LEAST 7" longer than the "virtual" or board in Designer. If your project in the software is 12" long, you need to load a 19" board into the machine.
- When setting up the project at the machine, it is easiest to stay under rollers by choosing the "Centered on Length" option. If you ever see an option on your LCD display for "scale project" you need to review your board dimensions. This means the machine has measured your board to be smaller than what is needed. Just remember, you don't normally want the machine to resize your projects in any way at all.
- If you follow these steps, you will know that your project board will always be long enough to stay under the rollers. Since you now know you have a long enough board, you can answer NO to stay under rollers and it will result in the same outcome as choosing YES.

If you follow the setup instructions outlined above, you can be assured of success when carving/cutting your projects. Some may ask, "If I make my board 7" longer than my Designer board, won't that be wasting some wood?". Yes, 3.5" on each end of the board is not used and can go into your recycle pile. There are methods of "jigging" your project to eliminate this waste. Several jigging methods are covered in this Tips & Tricks

[http://www.carviewright.com/assets/tips/CarveWrightTips\\_and\\_Tricks\\_Apr08.pdf](http://www.carviewright.com/assets/tips/CarveWrightTips_and_Tricks_Apr08.pdf).

## CARVING A PROJECT

Once your project is saved and uploaded to the memory card, the card can then be inserted into the machine and the machine turned on.

**ALWAYS HAVE THE MACHINE IN THE OFF POSITION WHEN INSERTING AND REMOVING THE MEMORY CARD.**

### SELECT YOUR PROJECT

The projects on the cards are accessed from the keypad. Simply press the '1' (**Projects**) shortcut key to open the Projects Menu which can then be browsed using the **up and down arrows**. Once located, the desired project can be selected by pressing **ENTER**. Upon selection of a project from the project menu, the CarveWright will lead the user through the preparation process.

### PROJECT ORIENTATION

Before starting, it is important to note the orientation of the project as viewed on the computer screen as compared to the orientation of the project as it is being carved on the machine. This is important in the event that a specific orientation or location of the project on the material is desired. If the project appears as in Figure 2.3.1 on the computer screen it will be carved in the machine as seen in Figure 2.3.2. Also, raster carvings will be completed from the front to the back of the machine beginning at the *Starting Corner*. In the case of Figure 2.3.2 the "P" will be carved first and the "T" last.

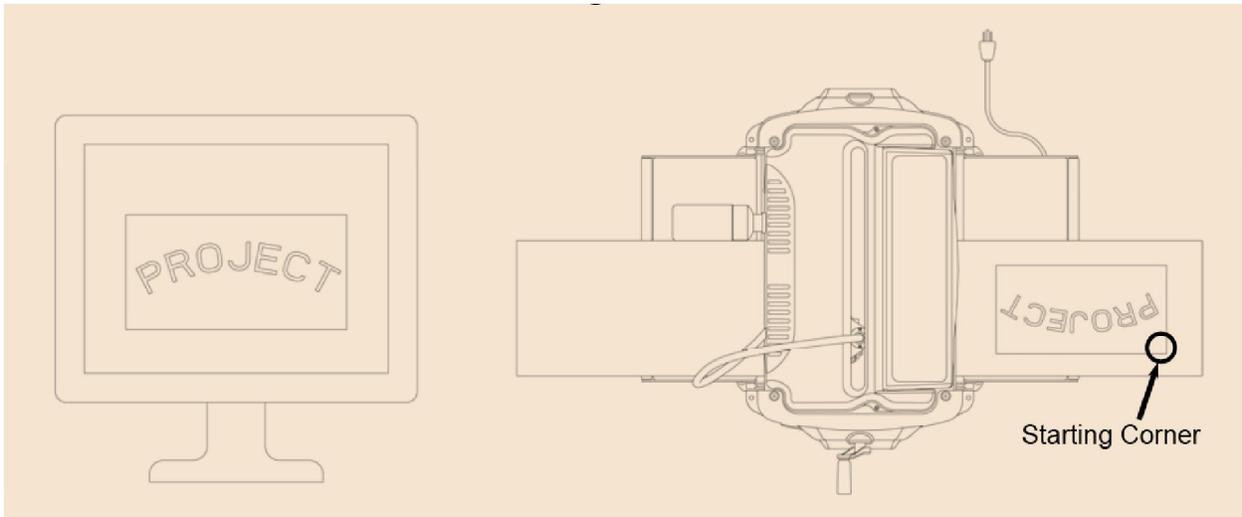


Figure 2.3.1 Orientation Of The Project On The Computer Screen

Figure 2.3.2 Orientation Of The Project In The Machine

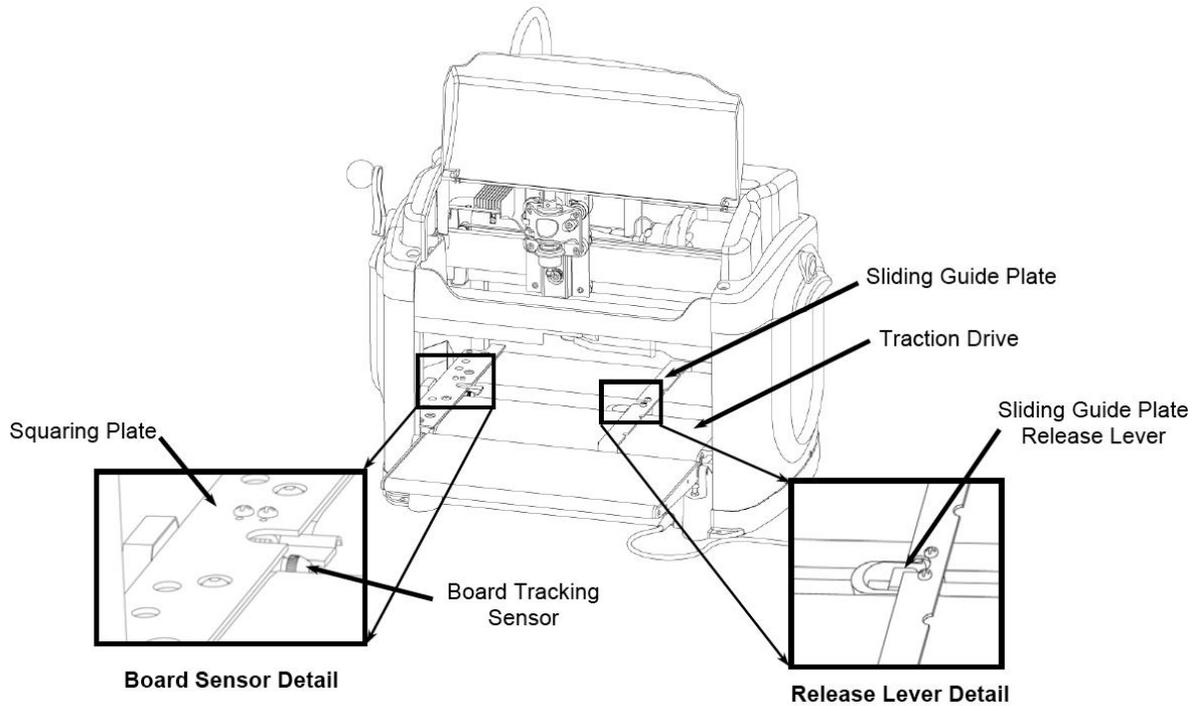
**PROPER INSTALLATION OF THE WORKPIECE IS CRITICAL TO THE PERFORMANCE AND CONTINUED OPERATION OF THE MACHINE.**

**INSERT WORKPIECE**

Press down on the sliding guide plate release lever and move the sliding guide plate to the right so that it will clear the width of the workpiece.

Check the bottom of the workpiece for features that will make it unusable in the machine. The bottom surface of the workpiece where it contacts the squaring plate must be flat and level for a width of at least 3/8ths inches along the bottom edge to allow the Board Tracking Sensor to accurately calculate the position of the workpiece at all times (see Figure 2.3.3).

If a workpiece does not have the required surface available for the sensor to follow (e.g., if it is already carved on the back), it will be necessary to fasten the workpiece to a sled or carrier jig to do further work on it. If a workpiece is slightly cupped or bowed, the workpiece should be inserted with the cup or bow facing down. (See Section 2.2: Board Preparation for details on proper board preparation)



**Figure 2.3.3 Workpiece Insertion Details**

Lay the workpiece on the traction drive so that it is centered lengthwise under the head.

Push the board firmly up against the squaring plate.

Gently push the sliding plate up against the inside edge of the workpiece. DO NOT push the sliding plate against the workpiece with significant force. The sliding plate is used to guide the workpiece and is not intended to lock the piece in position.

At this point it is critical to assure that the workpiece can travel freely in and out of the machine along its entire length without binding or encountering significant drag. Do this by moving the workpiece in and out of the machine by hand while it is lying flat on the traction drive.

**WARNING:** Do not attempt to load a workpiece that has a significant taper to the sides. A tapered workpiece will bind between the sliding plate and the squaring plate and will damage the traction drive.

**WARNING:** Do not attempt to load a workpiece that varies in thickness by more than 1/16" along its entire length. Using a workpiece with a larger thickness variation than 1/16" can lead to damage to the machine.

Next, lower the head by turning the head crank handle counterclockwise. Once the correct pressure loading of the head is reached the clutch will begin to ratchet (causing a clicking sound). It is recommended that the crank be rotated at least two full revolutions once the clicking sound is heard to assure full loading.

The clutch is intended to load the board against the traction drive with consistent force. In certain cases the machine can sense if the workpiece is not loaded enough and repeatably display *Please Load Board* on the LCD. Most often this decreased loading is caused by insufficient lubrication of the four vertical corner posts or the two vertical leadscrews. Please search for *Checking Head Pressure* in the troubleshooting section of our support site for the proper instructions on how to address this. <http://support.carviewright.com/checking-the-head-pressure/>

Make sure that the top safety cover is closed before proceeding.

Once the board is properly loaded, return the keypad and LCD to continue the project setup. The next question the machine will ask is to "Stay Under Rollers?" This question is covered in *Section 2.2 Board Preparation*. With a board, properly prepared following the 7 Inch rule, you can answer NO, as it will automatically stay under the rollers.

The machine will then measure the workpiece. If the size of the inserted workpiece does not match the size of the designed project then the machine will prompt for additional information. The machine will ask different questions based on if the workpiece installed in the machine is larger or smaller than the project designed in the software. If the workpiece is smaller than the designed project, then the

options are: *Scale* the project to fit the workpiece or *Load New Board*. If the *Scale* option is selected then options *Center On Board*, *Jog To Position*, or *Place On Corner* are displayed in order to locate the project on the workpiece.

**WARNING:** Be very careful when scaling down a project at the machine. The machine will scale the entire project to the largest size that will fit the inserted workpiece while maintaining the overall aspect ratio of height to width. It will not change the aspect ratio to fit that of the inserted workpiece. Scaling down can also lead to undesirable thinning of carved elements that may lead to chip out.

If possible, measure the workpiece to carve before starting the project layout in the software. This will help guide the design and prevent unintended scaling issues if the project design is different than the available workpiece. Measuring it with the machine will be the most accurate way. If the inserted workpiece is larger than the project design then the available options are: *Keep Original Size*, *Scale* the project to fit the workpiece, or *Load New Board*. If *Keep Original Size* or *Scale* is selected then options *Center On Board*, *Jog To Position*, or *Place On Corner* are displayed in order to locate the project on the workpiece.

Once all of the required data has been entered, the machine will prompt to insert the required bit. It will first ask to confirm the bit. Pressing ENTER will then move the cutting truck to the center of travel for easier access to the chuck. For projects that require more than one bit, the machine will prompt for each bit at this point and will store the calibration settings. The machine will locate the bit tip with its touch plate and will then locate the top surface of the board by touching the bit tip to the surface of the workpiece.

If the workpiece chosen has existing carved features or defects that would prevent the bit from touching the top surface, it is possible to choose where the bit will touch when finding the board surface. To do this watch as the machine begins the operation to find the bit tip position. The message *Finding Surface* will be displayed on the LCD. Press the STOP key when this message appears. When prompted choose the *Jog To Touch* option. Use the arrow keys to move the bit tip to a suitable flat spot on the board and press ENTER to record position. The machine will remember this location and use it to locate the tips of all the bits used in the project. It is also possible to make "Jog To Touch" the default method by choosing this in the *Configurations Menu*. This option remains set only until the machine is powered off.

The machine will then proceed to carve the project. A real time carving completion estimator will be displayed on the LCD and provides an estimate as a percentage of how much of the current carving is completed.

When the carving is completed, lift the top safety cover and crank the head up to free the workpiece. The workpiece can then be removed and examined.

After removal from the machine, it is advisable to blow it free of dust with compressed air before proceeding to sanding with the Sanding Mops.

## **QUICK PROJECT SETUP**

For most projects arranged in the tutorials from this guide, the machine setup commands are as follows. These commands assume you have followed the steps for properly setting up your board as outlined earlier in this section.

- Insert the memory card into the CarveWright CNC.
- Turn the machine on and *1.Project Menu* is automatically displayed.
- Press enter to access the project list.
- Scroll to the desired project and press enter.
- Load the board and crank the head down.
- Select NO to *Stay Under Rollers* and the machine proceeds to measure the width and the length.
- The machine next asks *Keep Original Size*, press enter for yes.
- Then press enter to select *Center On Board*.
- Choose NO for *Cut Board to Size*.
- The machine then prompts for the bit, press enter and the truck moves to the center for loading. Load the bit.
- Once the bit is loaded, press enter and the machine will measure the bit on the touch plate and then find the board surface.
- Last, the machine carves the project.